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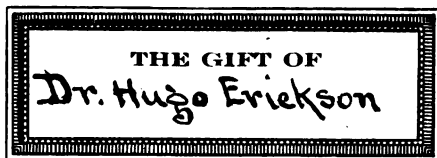
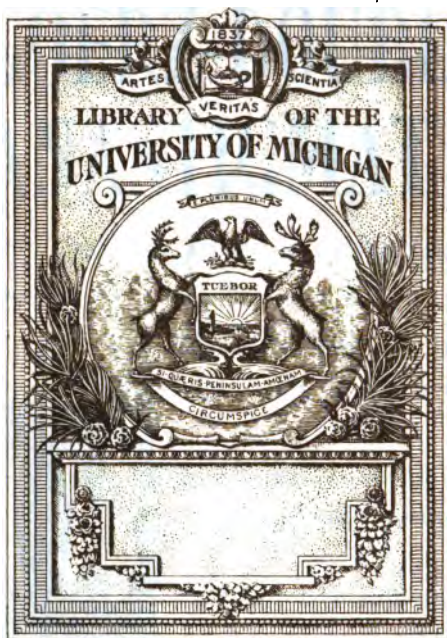
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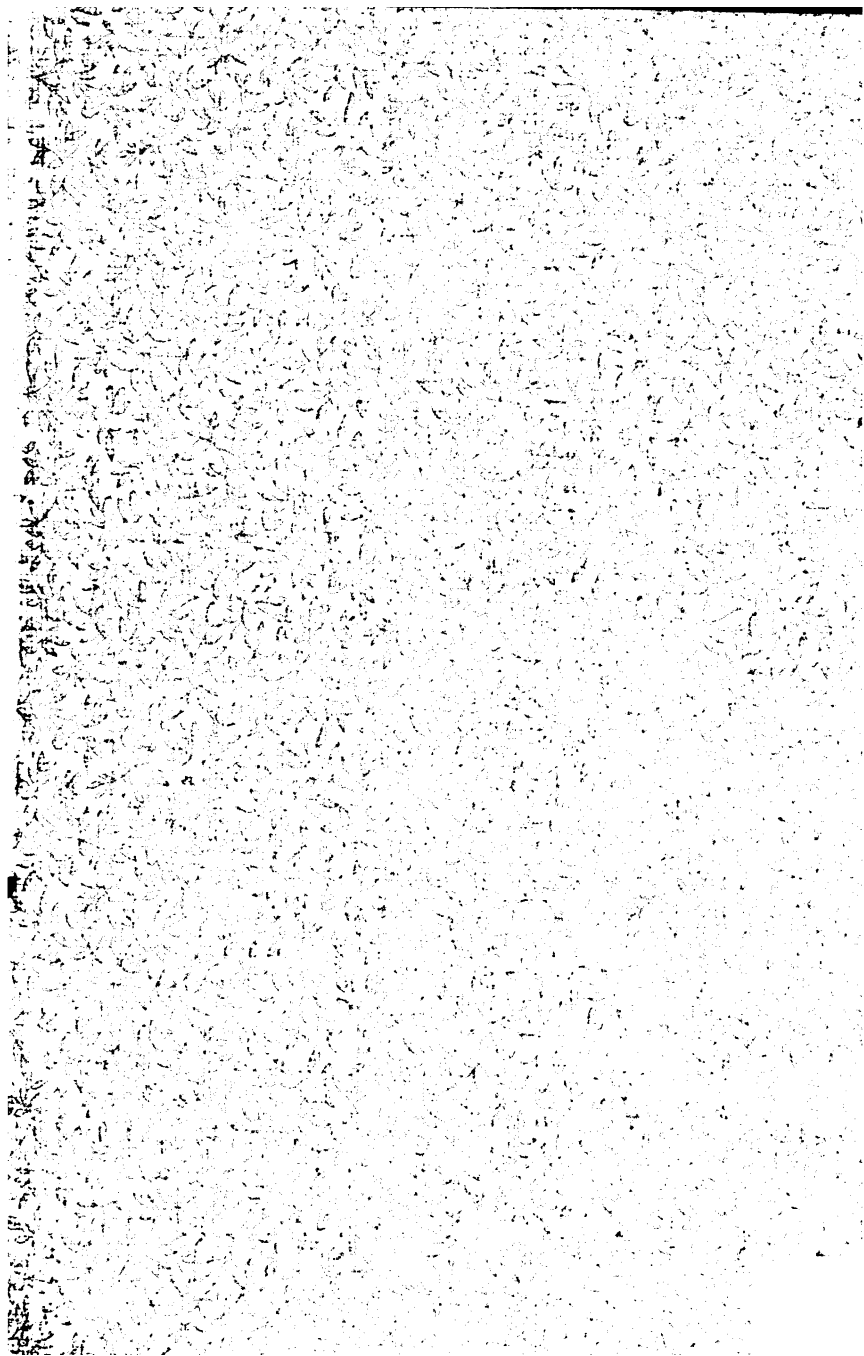
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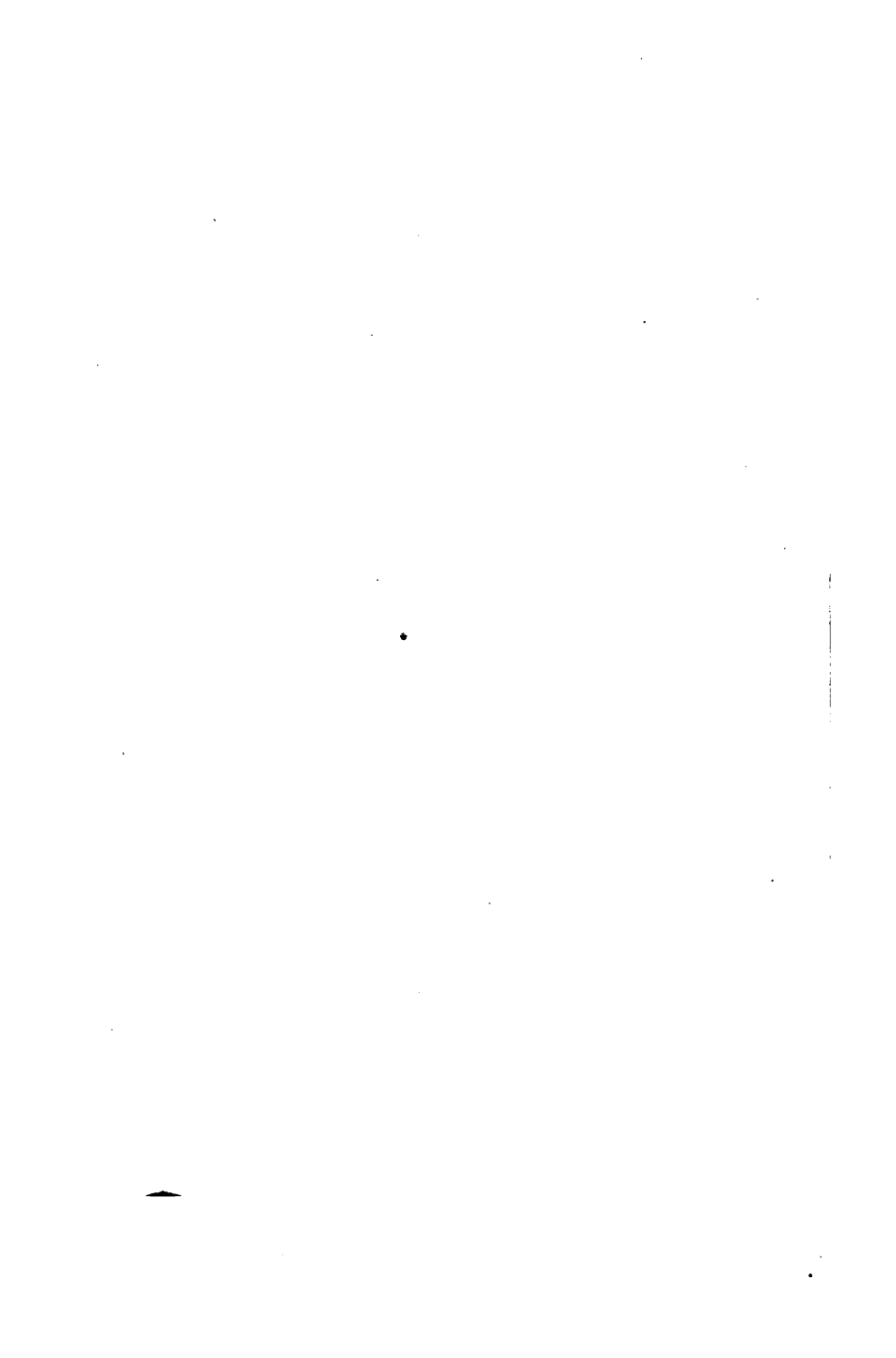
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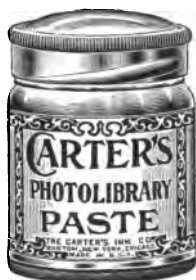
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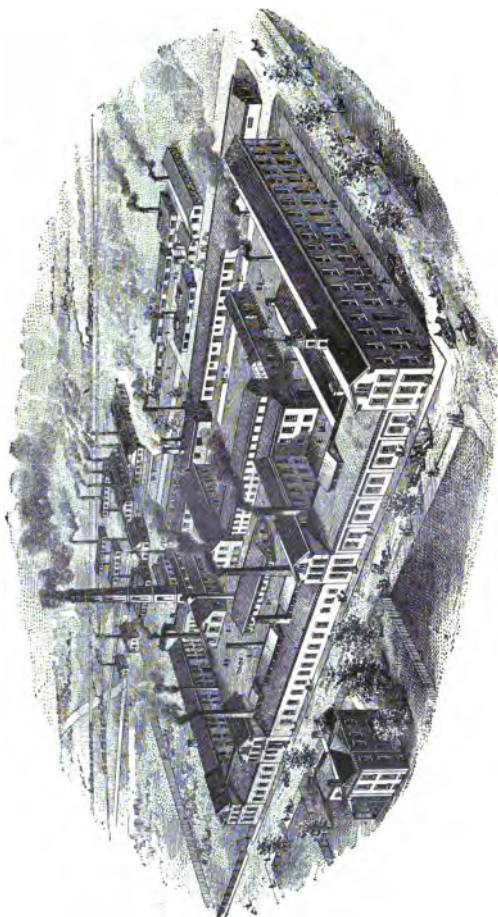
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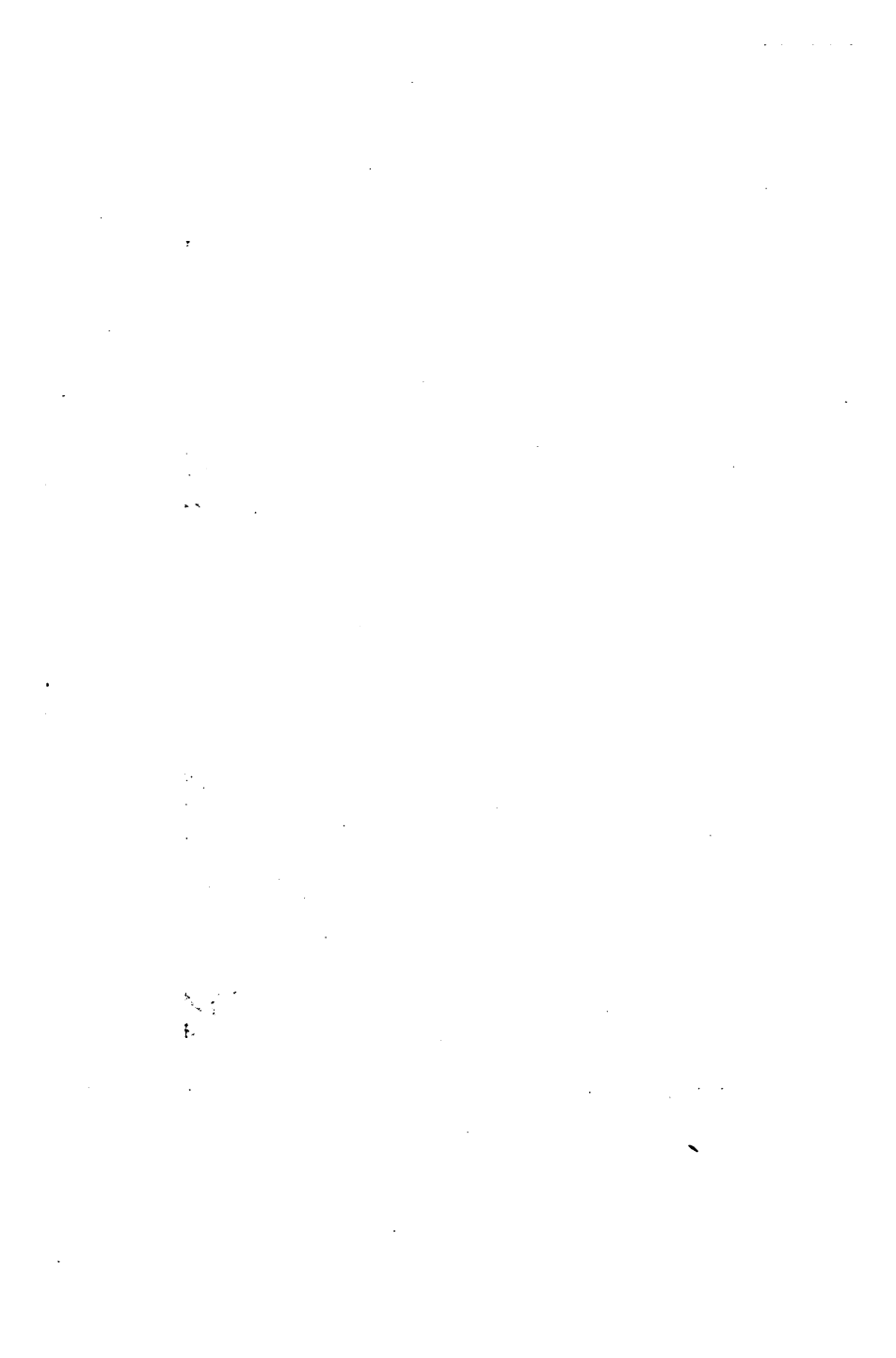
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A GENERAL RECORD OF PHOTOGRAPHIC PROGRESS.

EDITED BY

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IN the preparation of this, the thirty-fourth annual volume of PHOTOGRAPHIC MOSAICS, we have endeavored to include, in addition to the usual review and practical papers, a representative collection of the best photographs of the year, limiting the field almost exclusively to American work. Unless we are mistaken, this will enhance the value of MOSAICS to its readers, old and young alike.

Those interested in reproduction processes will find among our illustrations examples of work by all the principal engraving firms of America.

To the many friends, at home and abroad, who have assisted by contributing articles and examples of their work for the making of the little book, we offer our warm appreciation of their efforts to make MOSAICS more and more interesting year by year.

With hearty good wishes for all who focus,

EDWARD L. WILSON.

NEW YORK, NOVEMBER 20, 1897.

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PHOTOGRAPHIC MOSAICS.

1898.

SECTION I.

THE PROGRESS OF PHOTOGRAPHY DURING 1897.

NOTWITHSTANDING the fact that the mosaic of the year's photographic work does not display as much color as early indications promised, the picture is one of unusual interest. As one glances over the constantly increasing number of the applications of photography, there is seen each year a greater measure of success in the following of the old ways, with a continuous development of new lines of promise. This, after all, is real progress, and the record grows in fascination every year.

The fields into which photography now enters are become so numerous that the task of compressing its progress is one of no little difficulty. The temptation is to abandon detail and simply point out the sources of information concerning the year's advances in this and that department. Realizing, however, that MOSAICS readers are for the most part busy workers who have

little time for reference or "hunting-up" information, we adhere to the old plan of making our mosaic consist of actual pieces of information concerning the more important branches of photographic work. This will, we believe, produce the greatest good for the greatest number.

The record, as we have said, is full of interest. It should encourage and stimulate us all to renewed activity and thoroughness in our work. The disrepute formerly attaching to the practice of photography has completely passed away, and the world now gladly recognizes the usefulness and dignity of the art-science as a profession, as a "hobby," and as the youngest, but by no means the least, of the arts.

RADIOGRAPHY.

The practical development of this new science proceeds apace. It is now seen that radiography (or x-ray photography) has a fairly defined field of its own, concerning surgery, medical work, metallurgy, the adulteration of foods and drugs, etc., with little or no connection with the practice of photography as ordinarily pursued.

The apparatus and methods at first employed have been largely modified and perfected and a greater efficiency reached in results. Radiographic equipments now form an essential feature of the surgical departments of hospitals and the laboratories of our colleges and universities, while several military expeditions have included an outfit for radiography among their equipment. Several studios devoted exclusively to radiog-

raphy have been established in the larger cities, and apparently meet a constantly increasing demand for work of this kind. Many manuals devoted to the subject have been published during the year, of which we may mention Edward P. Thompson's *Röntgen Rays*, as perhaps the most comprehensive and useful. To record here the advances in this one field would require a volume of itself. A few instances of how radiography helps will, therefore, suffice to indicate its progress.

Röntgen Rays for Anatomical Work.—Messrs. Charles Remy and G. Contremoulins have found in certain radiographs of injected portions of the human body means of increasing our knowledge of the minute details of various parts of the human frame. The veins and arteries were injected with a solution of sealing-wax containing fine bronze powder in suspension, so as to be opaque to the rays. It will suffice here to state that these experiments point out that the distribution of the vessels is given exactly without the disturbance rendered inevitable in dissection. One notable part of their work has been the production of prints taken stereoscopically, a plan which it is easy to see will—though, it is understood, roundness of an individual artery or vein cannot be expected—enable the localization of each particle of minute texture to be seen in a most advantageous manner.

Röntgen Rays in Pharmacy.—Among the more recent applications of radiography is its usefulness in detecting adulterations in drugs and foodstuffs. In the *Annales de Pharmacie* Dr. Ferdinand Ranwez gives the results of experiments with the x-rays to detect impurities in saffron. The plan adopted was to wrap a gelatino-

bromide plate in black paper, place the saffron on this on the same side as the sensitive film, and allow the rays to act for four minutes, afterward developing and fixing in the usual manner. The presence of barium sulphate, potassium nitrate, and similar adulterants may thus be sharply indicated in the resulting radiograph.

Radiography in the Silk Industry.—It is known that male cocoons give much more silk than female, and M. Testenoire, a silk expert of Lyons, has employed the x-rays to distinguish one sort from the other by taking a picture of the chrysalis inside the cocoon. The eggs inside the female chrysalis are not as easily penetrated by the rays as the rest of the chrysalis, and appear distinctly in the photograph or on the fluorescent screen. The cocoons can then be selected according to their value.

Radiography in Mining.—Dr. Yoakum, an American expert, has exposed a piece of quartz to the x-rays, and has imprinted upon a photographic plate the shadow of particles of the precious metal within. When the plate was developed there stood forth upon it the outlines of rock, with specks here and there showing the presence of gold. Since then he has taken a number of pictures of valuable ore. The x-rays pass through the quartz easily, but the gold stays their progress, so the ray photograph shows the presence of gold distinctly.

Physiological Effect of X-Rays.—We have brought before our readers on previous occasions accounts of the serious action of Röntgen radiations upon the skin of the hands of various demonstrators; but according to statements in the *Bulletin of the Johns Hopkins Hospital*, the action is by no means limited to the surface of

the skin ; much more serious lesions take place, the deep-seated tissues, the bones, and the periosteum having been found to be affected. If these lesions once take place, ulcers may form and dangerous results follow. The explanation given is the adoption of the emission theory of the radiations. The particles of platinum are supposed to be so infinitely small as to be able to pierce the glass, and, if the glass, the tissues of the body also. These particles then lodge in the tissue and give rise to the various forms of irritation, the more noticeable of which have already been commented upon. Mr. Gilchrist advises any one who experiences the slightest ill-effect after exposure to the radiations to at once discontinue their use.

Special plates and bromide papers are now obtainable for radiography, with which results are obtained much superior to the earlier examples of the process.

ACETYLENE IN PHOTOGRAPHY.

The usefulness of this new (?) light for many photographic purposes has been abundantly demonstrated.

The Camera Club of St. Catherine's, Ontario, Canada, has installed a studio equipped for portraiture with acetylene gas, and reports complete success with it. The illumination is derived from a bunch of thirty burners, each consuming one-half foot of gas per hour, and fitted to a movable construction, so that the light can be placed wherever desired. With a rapid portrait lens, fully timed negatives may be obtained with two or three seconds' exposure.

At a recent meeting of the Edinburgh Photographic

Society, Mr. R. Irvine stated that he had produced successful drawing-room portraits with 12 60-candle burners (Bray $\overline{000000}$) and acetylene gas.

Apparatus has been placed on the market at home and abroad for the utilization of the gas for studio-illumination and house-lighting. The fear at first entertained that its use was attended by risk of disaster, has to some extent disappeared. On this point Mr. P. Foewin, F.C.S., says:

“I have been connected with this gas in America for the last three years, therefore I may be able to prove that acetylene is *not* the dangerous compound your correspondent would have your readers believe. Your correspondent claims acetylene to be liable to spontaneous explosion. Such is not the case, neither will it explode by the generator receiving a shock. This will prove it: I filled an iron ball with acetylene to a pressure of five pounds to the square inch, and then subjected it to a series of blows from a large sledge-hammer. Although the ball was bent in all shapes there was no explosion, neither has there ever been to my knowledge through this cause. Acetylene has a chemical action on *pure copper*, but none of a dangerous kind on brass. Series of experiments have been conducted by me at the Chemical Society of New York, and they all go to prove this. Several insurance companies in England are at present willing to insure houses, etc., lighted with acetylene, and, no doubt, in a short time all will do so. I may add there were last year 730 people using acetylene as a general illuminant in New York, and that only three accidents occurred, two through escapes and one through a generator being charged with a candle close by, condi-

tions under which coal-gas would have acted just the same. Acetylene gas is far healthier to burn than ordinary coal-gas, and when inhaled its effect on the human body and the lower animals is far less dangerous than coal-gas. In conclusion, allow me to request your readers to make a practical test, and I am sure they will agree with me that acetylene is an ideal illuminant, both for general and photographic purposes, and, under proper conditions, just as safe as coal-gas.

THE CHASSAGNE-DANSAC COLOR PROCESS.

Early in the year a veritable sensation was caused by the announcement, made by two gentlemen recognized as authorities in the photographic world, that at last a process had been discovered for producing photographs in the colors of nature. The process consists of coating photographs with a "mother" solution (apparently albumen), and then passing over it successively "red," "blue," and "yellow" liquids, when the colors appear as in the subject. The nature of these solutions is held as a secret by the inventors of the process, and concessions for their sale in various countries have been disposed of at fabulous prices. The American rights were secured by Messrs. E. & H. T. Anthony & Co., of New York, who announced that the liquids would be ready for sale last July. Messrs. Anthony & Co. have not, however, as yet satisfied themselves as to the performance of the liquids, and hence the process is not available here. Demonstrations given in Europe, before the British Conventions, at Dr. Eder's photographic laboratory in Vienna and other places, have failed to substantiate the claims made for it, and have produced a

reversal of the favorable opinion which at first existed in its favor. It is significant that, although the process is of French origin, it has not obtained credence there, nor has it been demonstrated before the French Societies. Just what will be the end of the affair it is at present difficult to pronounce, but the failure of the process when tried in public, and the bungling which has attended its introduction, would seem to point to its early relegation to the limbo of natural-color processes, of which the world has already had considerable experience.

M. de Saint-Florent's Color Process.—Ever since 1873 M. de Saint-Florent has been experimenting with the production of photographs in natural colors upon paper, and he recently described before the Société Française his last process, in which he has used the ordinary celloidin paper of commerce. The paper should be exposed to sunlight for from 80 to 100 seconds, till it has assumed a reddish-black color, and then immersed for ten minutes in a bath composed of :

Alcohol (36°)	100 c. c.
Glycerine	7 grammes.
Tincture of Iodine (1 per cent.)	7 "
Strong Ammonia	6 drops.

The alcohol may be the ordinary methylated spirit. The paper should be dried in the dark, and then exposed under a colored transparency till the colors appear, which requires about an hour in the sun, and it should then be fixed in a 6 or 10 per cent. solution of hyposulphite of soda. In this bath the colors show up very brilliant, and then pale to a lemon-yellow, when the print should be rapidly washed and dried in the sun. The colors will then be revived with all their intensity. If there

is no sun, then the print should be surface-dry, and placed in front of a bright fire. It is stated that the colors are permanent.

Dr. Selle's Color Process was dealt with in a paper read before the Royal Photographic Society of London during the year, but does not seem to have convinced anyone that Selle has solved the problem. It may be consulted in detail in the Society's *Journal* by those interested.

The Bennetto Process remains unknown and therefore unappreciated. Mr. Bennetto persists in his refusal to demonstrate its value in any manner conducive to the proof of its genuineness, and the method has so far been treated lightly.

The British Journal speaks favorably of glass positives in color, produced by a process invented by a Mr. W. Brooks, the result being secured by exposure and development, without the intervention of dyes or stains. No details are yet forthcoming.

The Ives Photochromoscope, now known as the Kromskop, has been introduced commercially by an English syndicate, and its performance is viewed with considerable favor in that country.

ANIMATED PHOTOGRAPHY.

Few photographic inventions of recent years have been so universally exploited and appreciated as what are generally known as "animated photographs" or pictures representing scenes from actual life, with all their natural movement and effects. The making and projection of these pictures form what is spoken of as

chronophotography, an application of photography which had its birth in the familiar rotating tachyscope of childhood, afterward improved by the labors of Anschutz, and applied to useful ends by Muybridge, Marey, and many others. The perfecting of this invention is, indeed, one of the many remarkable works of progress of our time, providing as it does, a ready and efficient means whereby the life and scenes of to-day may be recorded for the instruction or amusement of those unable to witness the scenes in person or for those who shall come after us.

As is generally known, the *rationale* of chronophotography consists of the making, on a long strip of sensitive film, a series of consecutive instantaneous photographs representing all the instantaneously successive phases of movement or action in a scene. The instrument by which these photographs are obtained consists essentially of a box fitted with lens and shutter, or series of lenses, and containing a spool holding a length of sensitive film. This is unrolled by a crank or handle, passes the lens, and is exposed, and is afterward rolled upon a second spool. From the negatives so obtained, positives are made upon a strip of film coated with a suitable emulsion. The positive or transparency film so obtained is wound on a spool and placed in a special projection lantern. Here it is unwound, and, passing behind the objectives of the lantern at an arranged speed, gives upon the screen a continuous and harmonious representation of the scene photographed, but in an enlarged form. Another form of "animated photography" is embodied in the instrument known as the mutoscope, in which the small photographs originally made are

enlarged to about 5 x 7 inches, fixed in a circular holder in consecutive order as exposed, and successively presented to the observer in a portable box by the action of a crank turned by the person viewing the scene as he looks at the picture through an optical system similar to that of the stereoscope.

The amount of activity shown in this branch of photography during the year has been remarkable. For this work special apparatus and methods are required. The results thus far secured have attracted such a measure of public favor that an infinite variety of instruments for producing these photographs, and for their projection, has been introduced, and exhibitions of animated photographs are now as common as the familiar lantern-slide shows. Perhaps the greatest excellence in this work has been reached by means of the biograph and the mutoscope, both American inventions, although the apparatus of Demeny (Paris), Lumiere's Cinematographe, and others produce pictures of large size and clearness. An account of Demeny's instrument appeared in the September number of *Wilson's Photographic Magazine*. Those interested will find much information on the subject in the 1897 volume of the *Scientific American*, and in the little book, *Picture Ribbons*, by C. F. Jenkins, recently published.

The latest application of animated photography is interesting. It is to make a series of pictures of famous players in well-known plays, such as Joseph Jefferson in "Rip Van Winkle," for exhibition in the form of animated photographs, accompanied by an explanation of the play, in the smaller towns not visited by the players themselves. Thus the settlers of the backwoods

towns will, in due season, enjoy Bernhardt in her portrayal of Sardou's masterpieces, Francis Wilson in his side-splitting comedies, etc.

PHOTOMECHANICAL PROGRESS.

The applications of photography in the reproductive processes have now increased to such an extent, and cover so wide a field, as to render it futile to attempt a record of their progress in a brief review primarily intended for photographers. The demand for special treatment of this branch of photographic work is fully provided for in the several journals devoted to process work, and the excellent *Process Year-book* issued by Messrs. Penrose & Co. These are readily accessible to American workers, and the interested reader is referred to them as to the best means of covering the field of attainment.

The general quality of engraving has been raised to a higher standard of excellence both in our own country and abroad, America, however, being still well to the front. Three-color process work, although pushed with much enterprise, has not substantially advanced during the year. A great deal of admirable work is now produced in this direction, and the various methods are being more largely utilized for commercial purposes than formerly.

The use of aluminum as an etching surface preferable to zinc or copper, and as a substitute for lithographic stone, may be mentioned as an item of progress worthy of special process. In each instance, however, the new metal is still under experiment, and its capabilities are not fully known.

OPTICAL. PROGRESS.

While the year has not produced any startling discovery in photographic optics, steady progress has been made in the development and introduction of the new forms of lenses made available during the past two or three years by Zeiss, Ross, Dallmeyer, Goerz, Taylor & Hobson, Voigtlander, and others. The anastigmats of these firms have awakened a new interest in photographic objectives, and it is safe to say that their sales have exceeded those of all other forms of lenses put together.

The Satz or convertible anastigmats, introduced by Zeiss, of Jena, and their licensees, the Bausch & Lomb Optical Co., and Messrs. Ross, Limited, early in the year, have won general favor as an advance in the matter of wider capabilities and convenience over the earlier series. These comprise a system of lenses of different foci, which may be variously combined or used separately by means of a tube common to them all, being thus adaptable for work of widely different requirements.

The Stigmatic lens, made by Dallmeyer, referred to in MOSAICS, 1897, is now available in several series and has attracted much attention. It is intended for portraiture and copying, working at $f/4$, and including an angle of view 60° at full aperture while covering its field sharply. It is entirely free from astigmatism.

Messrs. Voigtländer & Son (B. French & Co., Boston, agents), have recently introduced two new series of the Collinear lens. Series III., with an aperture of

f/7.7, and Series IV., working at *f*/12.5, the first-named being designed for use in hand-cameras and for all kinds of outdoor work of the rapid and wide-angle kinds; while Series IV. is intended for use in copying, and the taking of interiors and general architectural subjects. The glass employed in these lenses appears to be of a high degree of purity, with an exquisite surface polish. The new Planar lens just introduced by the firm of Zeiss is of the symmetrical type, and is designed for use as a universal lens suitable for portraiture, kinetography, and all forms of instantaneous work.

ASSOCIATIONS AND CONVENTIONS.

The advantages of organization are now so generally understood by the fraternity that not only is the whole country divided among various State and national associations, but these have the enthusiastic support of a majority of the photographers where organized. The Ohio Association, as an example, has very decidedly helped to put its members on a higher plane as photographers and as business men. The national association, as a result of the work of the State bodies, finds itself stronger than ever in scope and usefulness. The convention of the P. A. of A., held at Celoron, N. Y., in July, was more numerously attended than any convention of photographers yet held in America. The photographic exhibition held in connection with it also surpassed all previous shows of its kind in quality of work.

The Photographers' Association of Pennsylvania held its first convention at Harrisburg, Pa., January 26th, 27th, 28th.

The Photographers' Association of Michigan met at Detroit early in February for its second convention.

The first convention of the Virginia Association was held at Richmond, Va., March 25th-28th.

The Indiana Association of Progressive Photographers held its third convention at Indianapolis, March 25th and 26th.

The Iowa State convention was held at Des Moines, May 11th to 13th.

The Nebraska Association met at Omaha in May.

The Photographers' Club, of New England, practically representing the fraternity in Connecticut, Rhode Island, Massachusetts, New Hampshire, and Vermont, held its first convention at Boston, July 28th and 29th.

The Northwestern Association, including the photographers of Minnesota, Wisconsin, and North Dakota, held its convention at St. Paul, August 5th to 6th.

The Missouri Association met in convention at Pertle Springs, August 10th to 12th, and the Ohio Association held its eighth annual meeting and photographic salon at Columbus, August 31st and September 1st, closing a remarkable year in the record of photographic organization in America.

BUSINESS.

From the business point of view, professional photography has made substantial progress since *MOSAICS*, 1897, was published. It has been a year abounding in big expectations, based on a revival of general prosperity, and therefore not without its disappointments; but on the whole the photographer is more contented with his lot than he was a year ago. Many new

studios have been built, some of them on a scale more magnificent than past years have known. Improvements in business methods and in the treatment of the subject, posing, lighting, etc., have also been the order of the day, and as a consequence of this prices are being generally advanced. The grand display of work shown at Celoron and the various State conventions seems to have given new hope and energy to the fraternity, and the incoming year will doubtless bring prosperity to many.

The time is ripe for better prices. Portraiture has advanced so remarkably of late years that the public begins to show willingness to pay for work that satisfies. The opening of a new season furnishes an opportunity to take fair advantage of this new spirit. Give your patrons something offering at least a suggestion of novelty in appearance, and make a stand for a price which will repay you for your work. This is a move requiring courage and enterprise in its carrying out, but it is being done, and the present furnishes an exceptional chance of success.

We recall a recent conversation between a photographer of the modern type and another of the older style. The latter was speaking of the difficulties he had to master to make ends meet, because of the multiplicity of styles he had to work to suit the varied tastes of his patrons. To him photography was, indeed, one of the hardest and most difficult means of a livelihood. The other enthusiastically dilated upon the ease with which he conducted his business and secured good prices. Focussing upon the reason for this disparity, it was found in the simple fact that the first mentioned

worked his business from the standpoint of surrendering everything to meet the caprice of his patrons, while the other was master of his art and taught his patrons to respect his ability and independence, as well as pay the prices he asked for his work.

THE PHOTOGRAPHER AND HIS PATRONS.

“Photography used to be a trade; it is now a profession as well as an art, and in this connection photographers should be treated on the same plane as physicians and lawyers. One does not ask his doctor to come on numberless visits without remuneration unless a cure is effected. You take it for granted the man to whom you intrust your bodily health knows his business and is doing all he can for you with the latest and best methods that his science commands. In the same way the person who intends to be photographed should go to some one in whom he has confidence, and then allow the artist to be the judge as to the pose and character of the portrait. Of course the sitter can have general ideas which should be told to the artist; the detail, however, should be left entirely to him. A thing to be remembered here, as in so many other avenues of art, is that the literal is not always the highest truth. And even the efforts toward strict naturalism, if by two different persons, must be colored by the personality of the artists. The expert in photography can identify the work of different camera practitioners quite as readily as the expert in painting identifies varying personalities in that medium.”—W. F. VAN LOO.

The person in charge of the reception-room should be

one of the smartest about the studio, and should know something of art and artists. In this way a good impression may often be made. The person in the reception-room and the operator should arrange some means so that if the salesman thinks a good order may be secured by taking a few extra negatives, the card now almost universally sent to the operating-room with the customer may be appropriately marked to convey this information.

Be particular about the walls of your reception-room. I would suggest a dark-green ingrain paper, or, better still, the walls may be draped with velour of this shade. Where space will permit, hang mahogany-stained panels, say $3\frac{1}{2}$ x 5 feet, on these arrange your pictures, framed in delicately gilt frames.—C. HETHERINGTON.

A sitting with the expert photographer of to-day, with his modern appliances, is quite a pleasant affair, and in order to obtain the best results the subject and operator must be on a social basis for the time being; as for instance, when President Cleveland walked into Sarony's, and, grasping the veteran by the hand, said: "Napoleon, I have come to visit with you while you make my picture;" and the public knows the result. There are many operators who would accomplish much more satisfactory results if they were not so nervous; like a current of electricity, it affects the subject at once. Talk of something pleasant, as it is pleasing pictures that catch, because they are always natural and easy.—H. F. HOSTETLER.

Photographers' Price Lists.—Properly constructed, the photographer's price list may be made a very persuasive business bringer in any progressive locality. It

should offer a selected example or two of the photographer's work, preferably of small size and printed in platinum. The covers may be of imitation leather of any appropriate shade, and the text (prices, sizes, styles, and hints to sitters) printed in black and red, or any two complementary or contrasting colors, on linen or bond paper. If half-tone illustrations are used, the use of a tinted coated-paper is, of course, advisable.

SPECIALTIES FOR PROFESSIONALS.

There are plenty of specialties, says John A. Tennant, for the enterprising photographer who seeks to make 1898 a successful year. The thing is to choose the one specially adapted to the business and to put plenty of work into its introduction. Pastel portraits, small colored pictures, artistic frames, combination pictures, multiple portraits, bas-reliefs, carbon prints in non-photographic colors, printed with wide margins on appropriately tinted mounts, platinotypes, plain silver prints, porcelain vignettes, and other similar specialties occur to the mind as opening business possibilities. Few of these have the merit of novelty, but that is not essential, the chief requisite being something not already made common, and pushed with enterprise and confidence.

It is surprising that pastels and colored pictures are not taken up more enthusiastically by the fraternity. The artistic taste of the public has been educated to appreciate good work in these lines and to be prepared to pay for it. But it must be good work, well chosen for attractiveness of subject, and the photographic as well as the color part must be thoroughly well managed.

There is money in frames also. I do not mean in framing as it has been done by photographers in the past, but as it is being done to-day in our large cities by workers who believe that the framing of a picture is as important as the production of the picture itself. The narrow oval and rectangular gilt and ebonized frames now so popular are especially adapted for cultivation as a studio specialty. They are generally admirable in design and tasteful in appearance, enabling one to get a good price for them when an attractive picture is shown with them. They occupy very little room in storage, and being boxed separately are much less expensive to carry than mouldings, which get bruised or damaged either in transit or storage.

Combination pictures also offer a profitable specialty field. They may be varied infinitely according to the taste of the photographer.

For a middle-class trade, where quantity as well as quality draws patronage, Klay's multiple pictures can be relied upon to bring business. This is a specialty which deserves more attention. Carbon or platinotype portraits, mounted and finished in uncommon ways, may be profitably handled as specialties in a business where they have not hitherto been used. Some of the highest-priced work of the best photographers consists simply of these classes of portraiture. Porcelain pictures are altogether different in appearance to the ordinary photograph; they may be introduced in all sizes, preferably printed in carbon, so that the color of the picture may add to its attractiveness. Such portraits bring fancy prices.

A little independent thinking will bring to mind a

variety of special lines, similar to those mentioned, which only need pushing into prominence to become profitable. I need only add, in conclusion, that the introduction of a specialty requires to be well advertised. This may be done in any way which commends itself as within the photographer's means. Undoubtedly the advertising booklet is the most profitable way to secure business. Full particulars of this department of business may be found in the articles on advertising given in the March and April, 1895, and the January and March, 1896, numbers of *Wilson's Photographic Magazine*.

LOCAL ADVERTISING FOR PHOTOGRAPHERS.

The preparation and planning of a series of reading-matter notices for local use should not present any difficulty to the wide-awake photographer. First, he must determine the amount of space to be used daily or weekly, and how long (in time) the series of advertisements is to be continued. The expense involved will help him to determine these things. If the photographer is already a regular advertiser in his local paper, he can generally secure the insertion of small reading notices of his business either free of charge or at slight cost. Where they have to be paid for at so much per line per insertion, of course the size of the advertisement as it is to appear, and the length of time the scheme is to be kept going, should be fixed from the beginning. A good plan is to contract for a given number of lines, to be used within a fixed time, for which an advantageous rate can generally be secured.

The sources of inspiration from which these daily

business talks may be drawn are innumerable. Local happenings, interesting persons, or events commemorated daily, the details of the photographer's business, proverbs, thoughts, and desires common to all as expressed in familiar sayings, may all be utilized to introduce the argument or point which is to make the business of the advertiser known to his townspeople. In Shakespeare, in Dickens, and other novelists, in the books or themes which for the moment absorb public attention, may be found many texts on which to base profitable business talk.

As a suggestion of the form in which local advertisements should be made up, I add an example. Let it not be forgotten that the reading notice is not to appear as a broad advertisement, but simply as an item of local interest, attractively introduced and delicately pointed with a business suggestion.

Example. "The beauty of American children," said a famous photographer not long ago, "is as peculiar, marked, and distinctive as the much talked-of beauty of American women." You are invited to spend a pleasant hour at the exhibition of children's portraits at Hegerman's studio, on Landis Avenue. Mr. Hegerman has for many years made a specialty of pictures of children, and his collection is of surpassing interest to lovers of child beauty. Visitors always welcome. Hours 9 A.M. to 3 P.M.

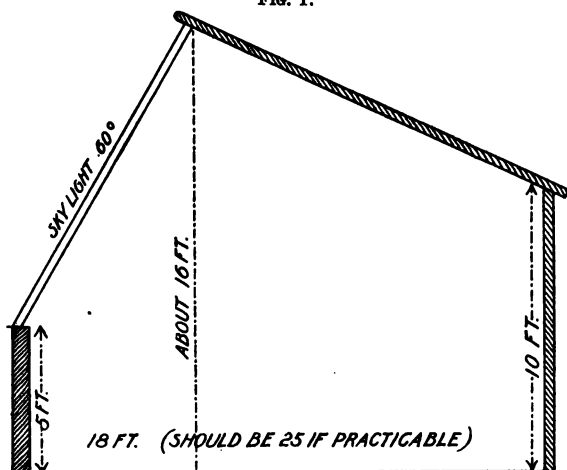
THE SINGLE-SLANT LIGHT.

This new-old idea in skylight construction continues to gain in popularity, and probably nine-tenths of the studios built during the year have been constructed on

the single-slant idea. Mr. G. G. Rockwood gave, at one of the conventions, a little talk on this method, which is worth reprinting here. He said:

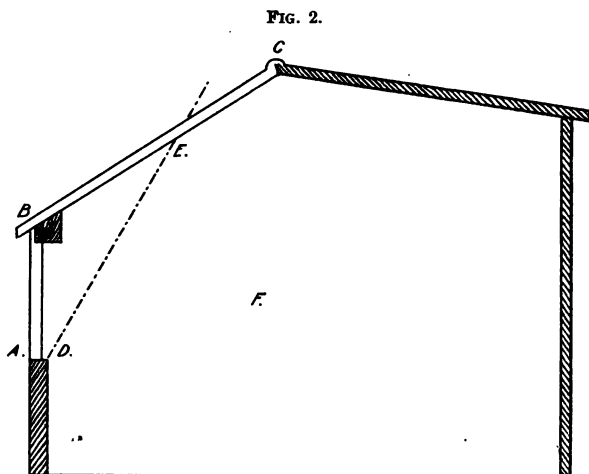
“Recently the single-slant form of skylight has been introduced and discussed as if it was a new thing in the art—in fact, a new principle in portrait lighting. The idea is, however, not novel, nor the desirability untried or of doubtful result. Does the average photographer realize that he now uses what is practically the single-slant skylight? or, in other words, that the effects he seeks are precisely the effects which he would secure did he possess such a light?

FIG. 1.



“A large majority of the existing skylights are known as ‘hip’ skylights—that is, they are built in two sections, usually joining, say seven or eight feet from the floor. The riser will start, say three feet from

the floor, extend five feet in nearly or quite perpendicular direction, and there join another sash or frame, which will rise in pitch from thirty to seventy degrees. Where they join there is usually a large obstruction in the way of a beam or trap for supporting the two sashes. (See Fig. 2.)



“Now, what is the first thing one does under this form of light in illuminating the sitter? We pull down the curtain from C half way (or more) the distance to B; likewise from A a like distance from A toward B. The extent of light ordinarily used extends from D to E. The sitter is supposed to be at F. Now, if the obstruction was removed from the junction of the two sashes at B, would not the change be very desirable, and would it not be equivalent to the single-slant light represented in Fig. 1, and of which we use practically the

same amount and direction of light as indicated by the dotted line in Fig. 2?

“After forty years’ experience under the skylight, Fig. 1 is the form which I have adopted for my son’s new establishment, where we were unrestricted, except in the width of the room, and could build any kind of a light which experience suggested. Hence, we have repeated the form in use for many years at my old establishment on Broadway and Fifteenth Street, which for general utility I never saw surpassed. Such a form needs but little change in the shades or curtains during the hours of sitting when the exposure of the skylight is due north. As an incidental matter, I may say that I use ground-glass as a personal preference. Many will not agree with me in this, as the difference in quickness is positively in favor of the new white ‘hammered glass.’ This matter of speed can be easily tested by exposing some sensitive paper under a piece of each sort of glass in a very weak light for a few seconds. It will be seen that the clear or ‘hammered glass’ will print a much darker tint than the ground-glass. Notwithstanding this, I prefer the soft transparent shadows given by ground-glass, and a couple of seconds’ exposure is not an eternity, even in this impatient age.”

The color of the walls of the operating-room should be a dark maroon, so that there will be no reflected light. The accessories should be small in most instances, so as not to interfere with the subject. Have the operating-room clean, with nothing in it which does not properly belong to its equipment. Always have ground-glass in the skylight. I prefer the single-slant light, about 20 feet wide by 24 feet high, starting 3 feet from the

floor. The proper pitch will be secured by bringing the top of the light 4 feet into the room. Smaller lights can be built in similar proportions.—CH. HETHERINGTON.

The Falk Studio, of this city, like the famous new studios of Strauss, St. Louis, and Stein, of Milwaukee, is fitted with a single-slant light. This practical indorsement of the new idea in skylight construction by these three notable photographers is sure to have a powerful influence upon the studio building of the next few years. Referring to the single-slant light in his recently published book on *Artistic Lighting*, Mr. James Inglis says: "It has much to commend it. It is the simplest and cheapest to build, the least liable to get out of order, and will withstand the winter's snow and the summer's hail better than any other form. In portrait work it will give any result that can be secured by any other form (of construction) and many that can be got by it alone. So, after a long experience in operating-rooms, I most unhesitatingly cast my vote in favor of the single-slant light." Mr. Inglis advises a light starting about five feet from the floor (two feet would be better for full figure work), and extending to a point not higher than fourteen feet from the floor, with a width of ten feet. Ground-glass is recommended for glazing, and the curtains used should be absolutely opaque, arranged in pairs, working from top and bottom, overlapping about a foot when closed. The interior of the studio should be dark, to avoid the possibility of reflected light on the sitter. All lighting effects are obtained by direct light, and, therefore, a non-actinic color should be used for the walls. "My own preference," says Mr. Inglis, "is for a green, a gray-green, as being most agreeable

to the eyes." It may be noted in passing that Hollinger's studio has only one dark wall (maroon canvas cloth), the rest of the studio being colored in a cold buff tone.

PORTRAITURE.

The leading characteristic of portraiture is, of course, the likeness, and should present the individual character; but, as every subject is more or less defective in proportion, so the artist should first perceive where the individual variations of his subject lie, and treat them accordingly, not by obliterating the variations of lighting and posing, but by modifying them, ennobling the character portrayed, and refining the same.

Many operators depend upon development as a means of securing brilliant negatives; this, though in itself a good method, cannot be called a legitimate method. Brilliancy should be secured by a correct disposition of the light during sitting. Contrasts produce brilliancy, but they must be delicately managed, or the result will be very harsh. The happy medium depends chiefly upon the subordination of the half-tones to the high-lights. Children's pictures are best when well lighted, and in the majority of cases female heads will bear plenty of light; but men's heads are best treated broadly, with bold lights and fairly deep shadows, which suggest strength. Old people of both sexes require a large amount of diffused light to soften the bold marks of time. Hollows in the face are less visible when the light falls into them, but when the light falls across one side of the depression is in shadow and the other side well lighted; hence the depression is well

emphasized—*e. g.*, a full face with many wrinkles, hollow eye-sockets, heavy eyebrows; a side light throws up every wrinkle, and produces generally a hard result. This is very much reduced by a general and diffused light coming from the front; but, in such a case, great care must be taken to avoid flatness. Fat people, babies, etc., that are “all roundness” and show very few lines or hollows, become very flat with a front light, while a soft sidelight gives a certain amount of relief, and brings out the modelling. — RICHARD PENLAKE, in *British Journal*.

Composition is the proper and pleasing arrangement of the parts of the picture, whether it be in the placing of persons or objects with reference to each other and to the whole, or in the proper arrangement of the lights, shadows, and lines.

There are lines in nature which convey the idea of strength or support as well as beauty. The most agreeable are, generally, curves. Those approaching nearest to a circle or an oval are not the most beautiful, because they suggest a mechanical figure which the eye is not slow to perceive. Those concerning the artist-photographer are such as are formed in the lights and shadows of the folds of drapery, dress, and clothing, and in the arrangement of the limbs and hands of the sitters, or in the accessories. In a landscape they are formed in the sweep of roads, lanes, rivers, clouds, and trees. We can also concern ourselves with lines suggesting repose, quiet, unrest. The study of the best statuary, as well as good engravings, or accepted masterpieces, will be of great value to an earnest seeker. Lines of

repose are such as are formed by the very nature of the clothed object in rest, and are easily recognized, because in nature they always form naturally and are continually before us. The droop of the willow, certain poses of the head, hand, and limbs express them well. Lines of unrest are seen in abrupt angles and direction. The zigzag lightning, the crest of the wind-tossed wave, and again the excited action of the body, as indicated by the hands, arms, and limbs and communicated to form in drapery or clothing.—C. A. ZIMMERMAN.

BACKGROUNDS.

The phrenologist reads a man by his head, the palmist by his hand, and there are many other ways of estimating character; but the surest way of sizing up a photographer is to watch his choice and use of backgrounds. In portraiture, and especially in bust and figure work, the background will tell at a glance the mental and artistic standing of the photographer. It is astonishing to see how widely the background has been neglected, even by men who are scrupulously finical in every other detail of their work. One has only to look around to appreciate the fact that not one photographer in a hundred has grasped the vital fact concerning the choice and use of grounds in picture making, viz., subordination.

The background has its place, and it is an important place in portraiture, but it should always be subordinated to the main point of interest—the subject. There are occasions when emphasis may be given by a strongly contrasting ground, but these are rare, and even when

they occur the highest point of the background should simply lead to the still higher point of interest in the subject. As a rule, the ground should be chosen to convey repose, and it should always be in harmony with the rest of the picture.

As far as my observation goes, the background evils perpetrated by photographers are largely due to a too slavish following and use of the conventional designs furnished by the manufacturers of grounds. Because a ground is painted by this or that "famous artist" is not sufficient excuse for its use except where it is appropriate to the pictorial scheme of the picture in which it is introduced. Every subject requires its own individual setting when perfection is sought, and this proper setting can only rarely be obtained in a background "ready made." Thus it happens that in the studios of those whose work has won the approval of art critics we find comparatively few "ready-made" grounds, the ground required in each picture being made up according to the requirements of the subject.

If photographers would only "get down" to this simplicity in their choice and use of grounds they would not only make better and more pleasing pictures, but would also save considerable in their outlay for background equipment.

With a dark ground, a light ground, one graded from light to dark, and an assortment of convenient lengths of designed and plain fabrics, the portraitist may consider himself fully equipped for all the contingencies of pure portraiture. I recall a busy studio where cabinet pictures are charged at \$15 to \$25 per dozen, in which no other grounds are used than those mentioned. And

in a year's practice, with these limited facilities, the operator learns to accomplish many things before seemingly impossible. The successful worker uses the simplest methods.

The background should always harmonize with the face of the sitter. Backgrounds are far too light as a general thing, and make the face look hard and wiry. If it is necessary to use a plain light ground, first turn the light to the ground, pose and light the subject, then arrange the ground at the proper angle to balance the light on the face. In portrait work too much attention is given to details of costume, etc., and not sufficient to the relation of face and background. The ground should be placed as far from the subject as possible, and the design of a figured ground should always be placed a little out of focus.—THOMAS AQUINAS.

CHARACTER PORTRAITURE.

In the unending practice which goes to the making of a capable portraitist, few branches of work are more directly profitable than the portrayal of characters immortalized in literature. Did photographers but realize the truth of this portraiture would advance with giant strides. For what is portraiture except the appreciation of character? And where do we find the great types of human nature so grandly delineated as in fiction and history?

Every effort of this kind, every hour given to the appreciation of character in books or behind the camera, brings in its train lessons of immense value. It is impossible to attempt the photographic interpretation of

the characters of Shakespeare, for instance, without coming in touch with the vital elements of all portraiture—the necessity of concentration of interest, the value of simplicity and appropriateness in the use of accessories, the knowledge of what must be left out, what emphasized, and what subordinated. There are other advantages: the photographer learns of the importance of the pose in expression, the remarkable power possessed by lines and masses for the production of effect, and of the part played by illumination toward the accurate rendering of the subject. Apart from all this, work of the sort referred to forces the photographer to study the masterpieces of literature, to grasp the types given therein and make them his own, widening his horizon and gathering a degree of culture which will enable him the better to properly appreciate the limitations and possibilities of his art.

This much being said, it follows that to be successful in portraiture the ambitious photographer must, at least, be acquainted with the masterpieces of character painting presented in literature and art. If he can attempt their reproduction with the camera, aided by sympathetic models, his appreciation of them will be directly turned to practical account. Those who have opportunities of photographing professional men and women who have become famous by their stage representations of well-known characters have, of course, many advantages. What a lesson for the portraitist, for instance, would there be in an hour or two spent under the skylight with Jefferson as “Rip Van Winkle” or “Dr. Pangloss.” But the minor characters and simpler themes, such as “Priscilla” in the “Courtship of Miles Stand-

ish" or the "Little Boy Blue" of Field's songs, also offer a fruitful field in which models are more readily obtainable than in the higher ways.

POSING AND LIGHTING.

The dominant or high-light of the forehead in nature is scarcely ever pure white; the deepest shadow on the human face seldom pure black. We too often render them so. The old wet plate in the hands of the best workers gave the relations of light and shade better than the early and primitive dry plate. This was not entirely the fault of the dry plate; the former being less sensitive than the dry plate of to-day, overlighting did not so much affect the result. This matter is to-day quite different, for with the plate of to-day and proper illumination, backed by the best chemistry of the dark-room, the most subtle gradations of light and shade may be rendered with full value and effect. You ask what kind or shape of light does an artist prefer? He needs but a hole in the wall or in the roof or daylight out of doors. Photographers as a class have been wedded too much to certain kinds of skylight. There is no pet position or lighting possible in any skylight with the best workers.

You may be surprised to hear me say that almost the best study of lighting may be had upon our streets, lighted as they are from the top and lined by rather tall buildings of non-reflecting tones or colors. It is here that the most varied effects of light and shade, and, therefore, of naturalness, may be seen and studied with profit. This may strike my best hearers as extremely

strange. All that I ask is that you will give it a trial of one day, selecting, of course, the shadow side of the street, or that portion upon which the direct rays of the sun do not stream while you are inspecting the passing crowd. The effect of this street lighting is like a very high, side, or top-light, with much more diffusion. Early faulty lighting and crude chemical effects made retouching necessary, and this was the case much more often than where the complexion or the lines in a sitter's face made it necessary. There is still too much retouching. Cut loose from conventional lighting; set out on a voyage of discovery under your own skylight; throw wide your skylight curtains; perambulate your sitter about the room; closely observing the depths of the changing shadows on the face. You will find by close observation and by careful change of position that lines and wrinkles, usually left for the retoucher, disappear. You may then be struck by the apparent flatness of the image, judged by your former method of lighting. At this point, by making an experiment in placing back of your sitter backgrounds of varying depths of light and darkness, you will presently be able in this, to you, peculiar light, to present a roundness and a brilliancy and a naturalness and a difference in favor of the method. A room-light is not a trying one, it does not bring out all your perfections or imperfections; nor does it accent the latter as the poorly managed light of the skylight does. Have any of you ever heard a photographer laboriously trying to convince a complaining sitter that one side of the face must be dark; that a heavy shadow must exist under the eyes, nose, or chin, or there could be no likeness? Have I made my points

clear, or have I merely succeeded in tangling you up? Let me persuade you to study the subject.—C. A. ZIMMERMAN.

THE ARRANGEMENT OF THE ARMS AND HANDS.

It is lamentable that so little attention is given by photographers generally to the natural and beautiful arrangement of the arms and hands. God made these members of the human body not only for use, but likewise for beauty. I say that they assist the artist very much—incalculably in composing. All recognize this fact. It has been a sorrow to the whole profession of artists always that about the most magnificent statue in the world has no arms. How infinitely more wonderful would the Venus de Milo if she had arms. Not because we could then tell whether she was offering a laurel wreath to a victorious warrior or propelling a bicycle, but because she would appear more beautiful and create greater delight for the lovers of art.

It is difficult to give definite rules or “laws” bearing upon the arrangement of arms and hands. There would not be space for a tithe here, but I will give you a hint. I think it is Burke, in commenting upon beautiful forms, who says: “As perfectly beautiful bodies are not composed of angular parts, so those parts never continue long in the same right line; they vary their direction every moment, and they change under the eye, by a deviation continually carrying on, but for whose beginning or end you will find it difficult to ascertain or paint.” While you read this do you not think Burke had the arm and hand in his mind? Now, granting

that the hand and arm are "beautiful bodies," what one of taste would be guilty of neglecting to make the best of them when they are introduced in a picture? The aperture of the eye being circular, the objects which enter it containing a similar continuity of form fall most agreeably upon it and are observed with the greatest ease. Prove this by examining a cube and a globe, or a nicely arranged arm and a "teapot handle" together. There are other reasons probably why circular or undulating forms fall most agreeably upon the eye; why the reverse are said to "hurt the eye."—EDWARD L. WILSON.

THE FOLIO PORTRAIT.

The *Practical Photographer* describes the following new style for portraits as being adopted by prominent English photographers: "The portraits are in platinotype, delicately vignetted on a large sheet of paper which is left unmounted, the heavy kinds of platinotype paper being sufficiently thick to obviate the necessity for a mount. The portraits, as a rule, are bust pictures, and resemble crayon or pencil drawings." This effect has for some time appeared in the recent work of Mr. Hollinger, of our city, and is exceedingly tasteful. Mr. Hollinger's pictures are made with a white background, printed on small pieces of platinum paper, and mounted on large white mounts with a delicately tinted centre.

Here is another similar style of finishing portraits to meet the demands of cultured patrons. Suppose we have a cabinet negative of a young lady, three-quarter figure, with a head about three-quarters of an inch in

width. Print in platinum, and cut away the space about the figure until it just fills a space $2 \times 4\frac{1}{2}$ inches. Now take a piece of heavy, rough surface-paper of the familiar tea tint, and cut it to the size $6\frac{1}{2} \times 10$ inches. In the upper left-hand corner, one inch each way from the top and left side, mount a piece of white or faint cream-tinted paper measuring $2\frac{1}{2} \times 5$ inches. When this has dried under pressure, mount the platinum portrait on the white space, so as to leave an effective margin of about one-quarter of an inch all around it.

This style, which might be called *portfolio* size, is suited to many sorts of subjects other than the example given, and is tastefully effective in appearance. The white or cream centre mentioned, as well as the platinum print, should be made on paper as thin as possible, such as platinotype AA paper, and the mounting so carefully done that the portrait and its mount lie perfectly flat when finished. An example of the style referred to was given in the *Practical Photographer* for February, but the idea is an old one. Various modifications of the color of mounts and other details will suggest themselves to portraitists of refined taste.

ORTHOCHROMATIC PLATES FOR PORTRAITURE.

A. E. Johnstone, a worker of wide experience in exact manipulation, reports as follows concerning a series of tests made to ascertain the value of orthochromatic plates in portrait work.

“It should be clearly understood that I have been looking into the value of orthochromatic plates solely in their relation to portraiture. The fact is to be deplored

that investigators and writers on this subject have been so persistently neglectful in the matter of distinct specification of the purpose for which these plates were supposed to be used.

“As a matter of course, tests were made with life-subjects, and were comparative, the best makes of orthochromatic plates being pitted against the best plain plates. No screens were used, as the makers claim that good results can be produced without them. The time of exposure was, in all cases, ‘full.’

“It being generally conceded that the up-to-date portraitist uses the quickest plate possessing the necessary qualities of clearness and vigor that the market affords, those orthochromatic plates designated as ‘slow’ did not fall within the scope of my investigation. To portrait photographers who even to this day (I understand there are such) fail to realize the true value of a quick plate, I will simply say, *en passant*, that not only is the danger of movement in difficult poses lessened in proportion to the duration of the exposure, but it enables the clever and observant operator to ‘snap’ on to his plate some pleasing, and often delightful, expression which may flit across the countenance of even the most self-conscious of sitters.

“Giving this circumstance its due weight, it was natural that my first tests were with rapid orthochromatic plates. I will say at once that I found their orthochromatic qualities were not in evidence upon the resultant negatives. Prints made from the negatives were shown to a number of good judges, and in a slight majority of cases the preference was given to the prints made from the ‘plain’ plates. I myself feel it was about a tie as

regards quality, with the advantage, however, for the plain plate, inasmuch as I could afford myself a fuller developing light with the latter. I consider the value of quick orthochromatic plates *nil* for portraiture, if not, indeed, a handicap on account of the more difficult dark-room manipulation.

“Taking up now the orthochromatic plates of ‘medium’ speed, I again found the same lack of favorable results. I confess to being somewhat surprised at this, and by way of verification I spent a couple of days with my colored papers. I found that it is chiefly the greens that are more truly rendered by the use of orthochromatic plates (of course not especially orthochromatized to other colors). The serious portrait artist, however, will hardly care to exchange rapidity and facility of dark-room handling for a slightly better rendition of green draperies, except in isolated cases.

“When it is necessary to cut down the developing light 50 per cent., often thereby jeopardizing good skylight work, not to mention the inordinate strain on the eyes, one naturally asks for a substantial *quid pro quo*.

“To state the results of my experiments succinctly: I have found that the quick and medium orthochromatic plates regularly on sale do not possess the qualities from which they derive their name to a degree material to the portraitist.”

RETOUCHING.

In few things is the advance in professional portrait work so clearly evident as in the attitude of the more thoughtful workers in the matter of retouching. As a matter of course, the smoothly retouched portrait will

exist as long as a majority of the public demands that kind of work, but the number of photographers abandoning the old habit of retouching every negative increases year by year. In some studios the retouching desk is conspicuous by its absence; in others it is used very rarely. The principles of lighting, the use of orthochromatic plates, and the capabilities of the various printing surfaces now available are so well understood that the necessity for retouching disappears when artistic portraiture is in question. How inestimably the picture gains by judicious handling in this way may be seen by studying the portraits by Hollinger, Minns, and Tingley, which appear on other pages. We do not intend by this to say that the retoucher's pencil has not its legitimate place in portraiture with the camera, but that its use has been largely misunderstood, and that a better appreciation of its advantages and disadvantages is becoming apparent.

As H. F. Hostetler says: "There are a great many operators who have their work spoiled by too much retouching. Retouch simply to overcome or correct the defective rendering of color-values by photography. As I look at you I am unconscious of any blemishes, but the sensitive plate, unfortunately, does not see you in the same light. My great aim is to secure solidity of form, solidity of flesh in my photography. Many photographers fail in this and produce wooden and woolly results, because they kill the life-like appearance and completely destroy anatomical structure by over-retouching."

Large negatives should be retouched on the back of the plate only. In this way you get rid of the sharp-

ness. This can be done by coating the plate with ground-glass substitute, which can be obtained at any stock-house.

PANORAMIC PHOTOGRAPHY.

In the February number of *Wilson's Photographic Magazine* Mr. Franklin A. Nims gave a complete account of the production of panoramic views by the use of a series of negatives. As this is the only method given so fully of late years, we reprint it here as worthy of preservation :

Selection of Subject.—Take a position from which the whole view cannot be included on one negative, with the sun over the right or left shoulder, if possible; in any event do not let the lens point toward the sun so as to require it to be shaded from the direct rays. A cloudless day should be chosen, because clouds shift their position before the series of negatives can be made, which interferes with their proper matching in printing. Should clouds appear, however, the sky must be masked out before printing. Also avoid a windy day. Never attempt to make a panorama with horizontal lines across the view, as a railroad, for instance, or the broad side of a bridge, because you thereby describe a section of a circle, and the result will be curved lines in the picture. The more negatives required, the worse the effect will be. They may be introduced on an angle vanishing in the distance. Until experienced in this line of work do not attempt to have moving objects appear, and when they do, endeavor to have them far enough from the ends of each plate so as not to interfere in the printing of the next plate.

Instruments.—A standard view camera of any popular make. A strong, rigid, and substantial box (whatever size of plate is to be used) is much more desirable than a light, flimsy affair. A lens that will fully cover the plate, of medium angle and focus, tending more toward long than to short focus, and, when occasion will permit, a lens that will cover the plate fairly sharp without a diaphragm. A 10 x 12 or even an 11 x 14 lens will be found most suitable for an 8 x 10 plate. Select a good solidly built tripod. Use slow plates (23 sensitometer), and either a sure working time-shutter or the hand for exposures. When the view includes a waterfall, a train of cars moving at full speed, or other fast-moving objects, then use quick plates and give instantaneous exposures. Place the tripod firmly and level it properly with a spirit level.

Making the Exposures.—As a rule, it will be advantageous to begin at the right-hand end of the view, although one has to judge of this according to the view in question, the light, and the time of day. If the shadows are plenty deep enough and coming toward you, then begin at the right-hand end of the scene; this is to avoid a preponderance of shadow; if, on the contrary, the shadows are travelling from you, begin at the left-hand end. Rule the ground-glass in pencil one inch from the edges, and mark the centre of the glass also. When you have focussed for your first negative, make tight the camera-screw through the tripod head, insert the proper diaphragm. This depends largely upon the subject at hand and the lighting, in conjunction with the other negatives to be made in the series, for no exact rule can be laid down, nor can

the time of exposure be indicated. I will state right here that, if a vast scope of territory is to be included in the picture, one or both ends are likely to be at right-angles from the centre section; hence one can readily see that the same exposure cannot be given to each negative, for one or more will be in the full sunlight, while the others will have more or less shadow. In my own practice I often use different diaphragms and exposures in a set of negatives accordingly as necessities require. *Note well* the object through which the pencilled line on the ground-glass passes, whether at right or left in the direction you are working. We will assume for convenience sake in this article that we are working from right to left.

After the first exposure, withdraw the plate-holder, loosen the tripod screw, and turn the camera to the left until the object through which the left-hand line on the ground-glass passed in the preceding negative comes in position for the right-hand line to pass through, taking care that the camera is always perfectly level; focus and tighten the tripod screw again, also noting what object the left-hand line passes through, insert the proper diaphragm, and again expose. The same care, precaution, and attention are needed for each negative, whether two or a dozen are taken to constitute the picture, and, with these success may be obtained. Remember that the position of the tripod must not be changed, as all the negatives are made from one point; neither must one of the legs of the tripod be allowed to move, hence it is essential that it be solidly planted in the beginning.

Developing the Negatives. — Seriously, I prefer “pyro,” and I believe nearly all (there are about a


dozen in this country) who successfully make panoramic photographs use it. Better and more uniform results can be obtained with pyro than from any other developer. Necessarily, intelligent and judicious handling must be employed, for here we have, say, a set of six negatives to be printed upon one continuous strip of paper, each negative taken from a different point of the compass, possibly with different-sized diaphragms, and with different lengths of exposure. What is needed is to get all the negatives as near the same printing density as possible; this is best done by developing each negative separately, although I sometimes develop several in one dish at the same time.

Preliminary Preparations for Printing.—The universal practice of dodging, etc., in preparing and touching up negatives for printing, viz., ground-glass substitute, color, etching, etc., is generally known to photographers. It is, therefore, not necessary to go into details and explanations in this article. Whatever treatment will improve a single negative, if occasion require, will apply equally well to a set of panoramic negatives. If the name of subject, photographer, or anything else is desired visible upon the finished picture, place the negative in the retouching frame, film side up, make two parallel lines with a medium soft lead-pencil where the wording is to appear (which should be near the bottom of the negative). Do not make the title-matter too large and prominent, a neat small letter is preferable. Take a pen and American drawing ink or India ink, begin at the right hand and work toward the left, making the letters reversed. This is easily accomplished with a little practice. If inexperienced, print your copy on

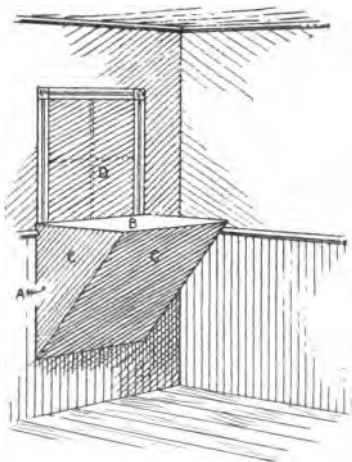
thin paper, then turn it over, and reproduce it as you have it reversed.

Matching the Negatives.—We will suppose we have a set of five negatives, the size is immaterial. Place No. 1, with the film side up, on the glass table (which will be described under the head of printing); this will be the right-hand negative of the series. Take No. 2 and lay it on top of No. 1. Move No. 2 until the left-hand end of it exactly covers the same part on the right-hand end of No. 1. If you have carefully followed the directions for making the negatives, you will find the object through which the pencilled line on the ground-glass passed to be one inch from each end of both negatives. With the point of a knife, or any sharp instrument, scratch through the film at top and bottom of each negative a line one-half of an inch long, the purpose of which will be observed later on. Take No. 3, and match in the same manner to the right-hand end of No. 2, scratching a line as before. This do with Nos. 4 and 5, and the set of negatives are ready for printing.

Printing.—The advent of ready sensitized print-out papers, obtainable in rolls of several yards in length—usually of ten yards—is a great boon to photographers for this class of work, as it was very expensive and troublesome to have the large tray and silver bath, required to sensitize a long sheet of albumen paper for the purpose, especially in warm weather. Now, however, no matter what time of the year, one can start his panoramic picture, print from one or more negatives, and, if desirable, leave the balance for several days or weeks. I have one or two now on hand that were printed early in September which I have not yet toned.



At a window in the printing-room erect a bench of convenient height, making the top of glass. Screen the light above the bench with any opaque material. Fix a white screen from the outside edge of the bench to the bottom of the window for a reflector, and drape all around with dark material. In other words, make a temporary dark-room about the glass-topped bench so that the only light entering will come up through the glass top of the bench.



Window and bench arranged for panoramic work. A, lower half of window left unobscured; B, glass top of bench; C, C, white screens; D, upper part of window above bench, obscured.

Having cut your paper to the required size, place negative No. 1 in the printing-frame, put the paper on, roll up the surplus of the right-hand end, and put the roll in the box at the end of the printing-frame. Now spring the back in position and turn the frame face up; fasten the edge of the vignetter so that it comes on the lines scratched on the negative at top and bottom; ad-

just the tissue-paper screen and set out to print, taking care that it is *square* with the sun, and *keep it so* during the printing. It is necessary to print under tissue and in direct sun. In examining the print always take it inside, remove the tissue frame, and examine only *one end* at a time. *Never* remove the whole back from the frame until the print is done. When the print on No. 1 is finished, place negative No. 2 in the frame; with a pin or needle punch a hole in the black lines at the top and bottom of the print from the scratches on the negative heretofore mentioned. Adjust the paper to No. 2. Should the tiny holes not come exactly over the scratches on No. 2 pay no attention to them here, but accurately adjust the printed object (vignetted edge) to the same object on No. 2. Right here we will caution the printer to have the line of horizon to absolutely match regardless of anything else. Spring the back into its place, and now we have a roll of paper in the little box at each end of the frame—one end printed, the other end plain. Turn the frame face up and adjust the vignettters at right- and left-hand ends. If by chance the tiny holes made should not match the scratches on left end of the negative, adjust this vignetter to the line on the print, whether it be to right or left of the lines on negative, either top or bottom, or both. Here is one of the essential details of successful panoramic printing. If the vignetter is too far forward it will cause a white line on the print, if too far back it will cause a black line. Another thing to remember is : do not set the frame out to print without putting the tissue-screen on, and then always keep it in the direct line of the sun. The printer will soon find out that he cannot run many frames at

once and attend to them properly—either of panoramic or single prints—for this kind of work requires the closest attention. If one section is too light or too dark the whole picture will be spoiled. If one is capable of attending to more than one print, and has frames enough, several pictures of the same subject can be carried on at the same time by starting both ends of the set of negatives. Or, after the first of a series is printed, start a fresh strip of paper in another frame. The balance of the negatives are printed in the same manner and with the same care.

When the negatives print too far under the vignetter, a little cotton should be put under the vignetter; this will soften the edge. If it is found, when the print is completed, that, in joining the sections, there is either a slight dark or white line, they can be “doctored” up before toning. The after-manipulations of toning, fixing, and finishing are the same as for small single prints, using dishes sufficiently large enough for the print to lay flat in, although I have successfully toned pictures 100 inches in length, made from 18 x 22 negatives, in a dish only 64 inches long.

The Printing-frame.—Take an ordinary frame, remove the ends, and make new side pieces six inches longer than the original ones, then join together; the old back can be utilized (only a back that opens in the centre can be used) by filling the three-inch space at each end of the back with a thin piece of wood. Make a box of thin wood two inches deep and as long as the frame is wide, and fasten it with hinges to the end of the back of the frame. The front lower edge should be rabbeted, so that when closed it will make a prac-

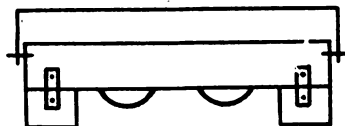
tically light-tight joint at the end of the back. On one end of the box fasten a piece of spring brass, let the end project below the edge, make a small hole in the end, drive a small brad or pin into the side of the frame. When the box is closed the pin catches the brass and holds it there, thus preventing the box from flying open. This box is for the purpose of holding the roll of paper before and after printing. Of course, it will be understood that a box is necessary on each end of the printing-frame. To make it doubly secure from light these boxes should be lined with an opaque material; a strip of black paper should also be placed over the ends of the negative. The vignetter can be a strip of cardboard, thin wood, or brass, which is held in place by pieces of spring brass fastened to the top of the frame, and under one end the vignetter is slipped.

A frame is made the size of the top face of the printing-frame, with an edge all around about two inches deep. Cover this frame with two thicknesses of the very best tissue-paper. Fasten a piece of spring brass on each end of this frame, sufficiently long enough to hold the tissue about an inch or an inch and a half above the negative, when it is sprung on to pins driven into the ends of the printing-frame. The frame is shown in the accompanying cuts.

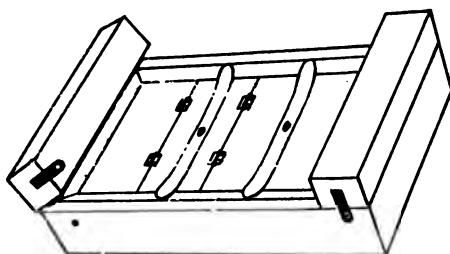
The changing of the negatives is done in the little dark-room described above, thus allowing the light to come through the negative, allowing the printer ample opportunity to adjust the print properly.

The line or point of juncture between the sections can run through a building as well as any other object, in fact better there than through a tree, and is best done

on the corner or along the sides of windows or columns. In the case of a public building the joining may run through the dome. With some subjects it is necessary to have the joining inside of the pencilled line on the



Side views of panoramic printing-frame with vignetting attachment and without it.



Printing-frame for panoramic pictures.

ground-glass; but never let it go outside of it, or you will have trouble in printing. If you have not the requisite density in your negative you will also have trouble—over-density is preferred to under-density, the difference being in length of time in printing only.

PHOTOGRAPHING FLOWERS.

The great aim in the arrangement of a bunch of flowers, or flowers in any grouping, is the proper massing of the lights and shades and the avoidance of spottiness. Flowers offer great difficulties in their proclivity to make the picture have a spotty appearance not always apparent to the eye. The alternation of light and dark flowers always gives unpleasant results. The grouping looks better when the arrangement of flowers is somewhat diagonally in two main divisions of light and shade, the transitions in each being gradual, the dark blending into the light and the light merging into the dark.

It is not difficult to secure proper massing if the foliage is called largely into service. There is an infinite variety in the shades of green, and the artist need not be as scrupulously exact as the botanist in giving each flower its own special leafage. He can draft into service any kind of foliage for beauty's sake.

After the arrangement of the shadows is complete, portions which need lighting up may be enlivened by wetting, so that more light is reflected, but have a care not to make a surface which gives a glare of light causing an aureole on your negative. Even dew-drops may be imitated by sprinkling with water in which a little sugar or glycerine is added to give it a greater consistency, but be careful not to wet the background, if you do not want an unsightly spot on the fair surface.

It is a common practice to fasten the flowers against a wall by means of pins, but the careless grace of nature is better had by laying them upon a table or on the

floor, and pointing the camera down at them. Only we must take care not to get too much light from above on the whole group, which would cause flatness in the picture. A few trials in curtaining off the light so as to get contrasts will give the proper method of illumination. Generally the principal light should come from one direction only. This gives most pleasing shadows on the ground, and admirable relief to the flowers themselves—sometimes almost stereoscopic effect. Cast shadows add wonderfully to the picture. A subdued light is better than a moderately strong one, but there should be illumination sufficient to give contrast.

I am an advocate of slow development for flower subjects, but this is a point to be decided by the photographer himself. Any tendency to harshness must be avoided, and so must tameness.

A variety of beautiful effects may be had by arranging the flowers in vases or urns. The background may be drapery, with gracefully disposed folds or plain. Scrolls, arabesques, or any large figured designs look too obtrusive in so small a picture as a photograph.

Some care is needed in managing the light to prevent unpleasant reflections from the rounded surfaces of the vessels. But often these reflections are an added source of beauty, especially where glassware is employed. The reflection of the window-panes and scenery add much to the interest and pictorial effect. Avoid also elaborate patterns in the vases. Plain vessels give much better contrasts with the flowers.

One error we are apt to fall into at the beginning of our practice is in the possession of the idea that there should be a symmetric balance—that the central figure

should be relieved by objects on the sides of equal proportions. You will very soon tire of such a disposal of things. It gets monotonous. There should be symmetry, but it must result from the balance of lines and masses of light and shade.

An object shadowed by another will naturally be darker in tone, and a dark thing will be relieved and brought out more prominently by being placed before a light one, which serves as its background, and so we can place objects in an appropriate setting with the exercise of a little judgment. Avoid overcrowding the picture. Too much detail detracts from the general interest. It is best to express our ideas in the fewest possible terms consistent with clearness.—JOHN BARTLETT.

CLOUD PHOTOGRAPHY.

The photography of clouds, to be successful, demands thoughtful attention to the circumstances attendant, the time of day, the direction of the wind, and the position of the sun.

To give some idea of the time of exposure, I would recommend with a filter containing a saturated chromate solution, and a lens of 160 mm. focus, with $\frac{1}{30}$ stop, for cirrus, six seconds as maximum. With an ordinary lens and stop $\frac{1}{15}$, one-thirtieth of a second is often sufficient with good illumination of sky.

An old developing bath is to be preferred for the development of cloud negatives, as it gives greater contrast between sky and clouds, and the development can be carried further without risk of fogging the plate. The addition of bromide also acts as a preventive of fog and gives greater density and contrast.

When the delicate cirrus and the more compact woolly-like cumulus are secured in the same skyscape, the use of an old developer is not to be advised, as the cumulus would come up first and get over-developed before the cirrus made its appearance. In such cases employ a fresh developer much diluted with water, and containing an excess of carbonate of soda over the pyro. If the image comes up lacking density, apply a solution with more pyrogalllic acid, and continue the development for density, adding bromide as indicated, if necessary. It is better to secure proper density in development, so as not to necessitate subsequent intensification, thereby clogging up the shadows in the negative and rendering the high-lights too harsh.

Clouds in Lantern Slides.—The most direct and satisfactory way to combine landscape and cloud prints is first to make a satisfactory plate of the landscape part. Then on another plate make a copy of the cloud, but when copying the cloud through the camera turn the cloud negative the *wrong way* round—*i. e.*, make a reversed image. Develop, fix, and wash in the usual way. Then with a very soft brush and some freshly mixed ferricyanide and hypo reducer remove from the cloud plate that part which corresponds to the part of the landscape as far as the sky line. This being satisfactorily done, both plates are dried and then brought film to film, and the two are bound together. Thus the cloud plate takes the place of the usual cover-glass.

This method has several advantages: (1) the effect of different "cloudscapes" can be tried with the same foreground; (2) the cloud and foreground parts can be made

(if so desired) of slightly different tints ; (3) if the clouds are too dense or not strong enough, they can be reduced or intensified according to the requirements of the case without altering the foreground plate.

Hoffman's Method of Printing in Clouds.—"The negative is placed in the frame, and printed in the usual manner until almost ready to be taken out. Then take a large magnifying glass, say about six inches in diameter, and with it condense the sun's rays on the sky of the negative. Move the glass slowly around until clouds are produced of the required shape and intensity. This can be done in such a very artistic manner by an adept that it will deceive an expert. Of course, it will require considerable practice. By condensing the rays to a moderately fine point smoke may be made to appear from the chimney of a house in the picture, and by slowly describing circles, which grow larger and larger, and drawing the lens further and further away from the negative, the smoke will fade away into the sky."

COMPOSITION.

In an admirably clear paper on this subject, contributed to the *Practical Photographer*, Mr. George Davison says :

"Amongst photographers the word composition is used with a variety of meanings. In its most common application it is made to refer solely to the arrangement of the main lines and boundaries of a photograph. This is a mistaken restriction. We constantly hear it said that the composition of such and such a picture is unpleasant because it requires more off the foreground

or because a roadway or a river-course is travelling out of the picture. This may be all very well as far as it goes, but it is elementary and incomplete, and in such criticism one is generally aware that the observation and knowledge go no further.

“Composition is not only a matter of the placing together of lines or outline boundaries and of masses of light and dark in a space, but it also concerns the entire disposition of objects to tell a story or describe a scene. In graphic representation it is personal selection in every particular of arrangement of line and light, of relative definition, relative tone, and of expression—figure of man or face of nature—and it involves, all through the artificial or personal combination, the keeping of the main motive, the sentiment of the subject uppermost in the illusion.

“Such works, to deserve the name of compositions, must have a motive personal to the author, and some feeling. Photographs are frequently presented for criticism about which it is simply impossible to say anything from an æsthetic point of view except that they are not compositions at all. There is no subject in them, no pictorial conception, no imagination or sentiment, no decorative aim or knowledge, no emotion stirred, no particular reason for anything—they are simply lists of objects, mere mechanical transcripts. . . .

“Any hard-and-fast distinction between selection and composition in art work is an impossibility. Both involve ordering and arrangement of parts. Whether the selection and composition be set down by brush and pencil or by lens and printing does not affect the principle. The camera could not do it without the man, and

no two men could or would independently produce the same composition.

“If further evidence were needed, let ocular proof carry some weight. Compare, under circumstances as nearly similar as may be possible, half-tone reproductions of good landscape pictures which have been produced by painting and by photography. There have been many examples of half-tone prints before us in the picture magazines. Take, for instance, the work by such a good painter as Mr. Alfred East. Its similarity in its reproduced dress to what we are accustomed to in good photographs is quite convincing. Hardly anyone will deny the presence of composition in the print from the painting. And in the photograph will be found something of all the qualities that go to make the print a composition. Why, then, strain to make distinctions which practical results will not warrant?

“In a composition there may be a pleasure in the subject, a pleasure in the effective way in which the artist has seized the sentiment of nature—that is, has presented our own unwritten or undefined feelings about the subject—and a pleasure in what may be called the decorative message of the picture.”

What to Look for in Landscape Work.—Answering this interesting question, Mr. W. B. Swift says :

“Many of us are perplexed to know what to look for before we put up the camera, and yet, as we stop to think of it, it is very simple. There is only one thing—it is a principal idea. The idea suggests itself to the observer by there being such a combination of circumstances in nature as to tell a story, excite pleasurable feelings, or suggest beauty.

“ This idea must have three requisites. Of course, it must be an idea that the instrument can take, or it would be of no use to the photographer. The picture as a whole must not contain any incongruous ideas. Therefore the idea must be such that it can be carried out in its details. The purpose of art is to give pleasure. Therefore this idea must give pleasure.

“ The idea, then, has the three characteristics: the capability of being photographed, the capability of its expression in detail, and pleasing. Let us consider briefly these three. The last two points seem to require only a passing word.

“ By practice only can we tell when the idea is lost in being photographed.

“ If the idea is not carried out in the details complexity is introduced and we lose our most valuable characteristic—simplicity.

“ The pleasure a view is to give must be something deeper than a passing delight. It must, like character, have permanency, so that the possessor of the picture grows more fond of it the more he looks at it.

“ The eye of a true character can look us steadily in the eye, and we seem to feel a flow of innocence from his noble face. The eye of the immoral man stares at us for an instant and sinks when we turn on it, and we feel that sincerity there has only a fleeting residence. It is a similar feeling we all have in viewing the results of high art and the mere matter-of-fact reproduction. The matter-of-fact view we hardly care to look at twice. The *picture*, a result of high art, is a constant flow of pleasure drunk in by the soul. This lasting pleasure is, of course, obtained, more than in any other way, by

fulfilling the laws of art throughout the view, and especially the one where the 'art conceals the art;' but just what aspect the view should have when we first see it that will at last result in this is what we want to know.

"The chief thing is simplicity. Complexity puzzles the mind and confuses the feelings. Simplicity holds the attention, invites consideration, and moves the feelings.

"There seem to be some who find it impossible to find ideas in nature. This, in a way, of course, is sad, but can be remedied. The simple reason is because they have not exercised their faculties in observing to any great extent the beautiful in nature. It would aid them to visit the galleries and meditate upon paintings of landscapes; or if such a one will obtain even a single excellent photograph of a landscape (which we all know are none too common) and study it, he will find that as he 'examines it again and again at his leisure point after point clears up, and things not fully understood at first glance become apparent, and all his whys and wherefores are finally answered.'

"In this way the mind is exercised along the right lines, and after that will easily discern the combinations in nature that make the charming story or pleasing picture."

PHOTOGRAPHING SUNSETS.

Mr. L. V. Kupper, who has produced many delightful out-door pictures, in which the setting sun is utilized to obtain pictorial effect, says of this work :

"A little art, a little thought, and a little patience

are the indispensable requisites. There must be skill for the selection and composition of a suitable foreground for each subject. The middle distance is of equal importance. The sky, as a matter of course, is the keynote of the theme. One of the advantages of this work is that one does not need to travel a long distance in search of pictures. Along our creeks, or in the marshes, or about the many little lakes which abound in country districts, beautiful effects may be obtained if one will only give the locality an occasional survey before going out with the camera. Two sorts of sunset pictures suggest themselves: those which are distinguished by their quietness, embodied in the phrase, 'the dying day,' where the sky is only broken by long lines of low-lying clouds near the horizon; and those which present bold effects, where the abundant cloud-forms array themselves as armies in battle, now opposing, now melting away, and again marshalled in great masses of light and dark. It is to the clouds that we must look in a great measure for the expression of our landscape. The pictorial effects presented by clouds at the coming or clearing off of a storm are generally appreciated. Such opportunities should not be neglected. For my own part, I always take care to have a camera ready, with a couple of plates at least, for such chances; and since it is often necessary to photograph against the sun, it is well to have your plates backed to avoid the spreading of the light, known as halation. Generally speaking, however, the sun may be taken at an advantage when hidden behind a cloud, or just below the horizon, or behind a clump of trees.

"Remember, also, that you are striving to record in

black and white scenes which are nature's most gorgeously colored handiwork. Do not let the colors entrap you. Go out and acquaint yourself with nature seen through a pair of blue-tinted glasses, and realize the relative values of sunset effects before you essay to picture them with your camera. Orthochromatic plates are a *sine qua non*, and if a screen can be used the effects secured will be correspondingly enhanced.

"The moment of exposure must be carefully watched for, an instant too soon or too late, and the effect is lost. Do not waste a plate when you realize that the best effect is past, but go home and await your opportunity. The blue glasses should be worn when one watches for the right moment. Leave the development of the plates until supper is over and nothing else claims your attention. Develop slowly, starting with a fresh developer, strong in alkali. If the highest lights come out quickly it may be advisable to paint them with a weak solution of bromide of potash, but more often the contrast may be better overcome by dodging during the printing of the pictures. Use the best means your experience suggests for the end in view; each view will require its own peculiar treatment, but all will demand care and thought at every stage.

"As a professional photographer who has found a delightful recreation in outdoor work, I commend this branch of our art to my co-workers as one which abounds in pure pleasure, while at the same time training the eye to see and the mind to realize the beautiful."

DEVELOPERS AND DEVELOPMENT.

Estabrooke's Para-hydro-quinone developer :

No. 1.—Hydrochinon 1 ounce.

Paramidophenol $\frac{1}{4}$ "

Dissolve in one quart of saturated solution of sulphite of soda.

No. 2.—Hydrate of soda 2 ounces.

Water $\frac{1}{2}$ gallon.

To use : Take of No. 1 one drachm, of No. 2 two ounces; larger quantities in the same proportions.

This developer is cleanly, will not stain fingers or plates, is very energetic, and will bring out a better balance of printing quality from undertimed plates than any formula that I have yet used. It can also be used until exhausted, with unvarying results regardless of its color.

*Pyro and metol formulas :**Pyro.*

A.—Water 15 ounces.

Pyro 4 drachms.

To which add a few drops of nitric acid.

B.—Water 20 ounces.

Sulphite of Sodium (cryst.) 2 "

Carbonate of Potash 1 ounce.

Bromide of Potassium 20 grains.

To develop take equal quantities of A and B. For instantaneous or flashlight work take 1 part of A, 1 part of B, and 1 part of water.

Metol.

Water 30 ounces.

Metol 75 grains.

Sulphite of Soda (cryst.) 1 ounce.

Carbonate of Potash $\frac{1}{2}$ "

Bromide of Potassium 10 grains.

For instantaneous or flashlight work take 1 part of the above and dilute with 1 part of water.

The best fixing bath I know of is Carbutt's new acid fixing and clearing bath.—E. BROWN.

Metol as a developer, restrained by hypo-soda.—A writer in the *Photo Mittheilungen* asserts that hypo combined with a metol developer acts as a restrainer, as a preventive of fog, and as an agent to bring out increased detail. In our own practice we have not found any practical benefit from this proposed addition of hypo, and prefer to keep it out of our developing trays. In extreme cases, however, it may be useful, hence we append the formula given in our contemporary :

A.	
Water	34 ounces.
Metol	250 grains.
Sulphite of Soda	5 ounces.
B.	
Water	34 ounces.
Carbonate of Soda	10 "
Hypo	15 grains.

For portraits take : 2 ounces of A, 1 ounce of B, and 1 ounce of water.

For landscapes take : 1 ounce of A, $\frac{1}{2}$ ounce of B, and $1\frac{1}{2}$ ounces of water.

Glycin developer.—*Photo Correspondenz* gives the following concentrated glycin developer which, it is claimed, is specially adapted for producing negatives of reproductions of oil paintings or subjects demanding considerable contrast with clearness of detail.

Sulphite of Soda	8½ ounces.
Carbonate of Potassium C. P.	3½ "
Glycin	310 grains.
Distilled Water	303.4 fl. drs.

This solution, well corked, will keep its developing power for more than a year. For use, take 50 minims of the solution and dilute with $3\frac{1}{2}$ ounces of water. Of itself this developer gives remarkably soft, rich nega-

tives, with abundant detail. When very strong contrast is desirable, the finest results are obtained by intensification with mercury.

Pyro and Metol or Quinol and Metol Developers with Sodium Tribasic Phosphate.—Pyro-metol developer :

A.	
Pyro	60 grains.
Metol	40 "
Potassium Metabisulphite	100 "
Potassium Bromide	10 "
Water to	20 ounces.

Dissolve the metol first, using heat if necessary ; but if heat be used, allow the solution to cool before adding the metabisulphite. Next dissolve the metabisulphite and bromide and pour the solution over the pyro. Make up the bulk to 20 ounces.

B.	
Sodium Tribasic Phosphate	2 ounces.
Water to	20 "

The above formula may be altered by substituting 60 grains of quinol for the pyro, but it should be dissolved in an ounce of alcohol and added to the balance of the solution, a little at a time, with energetic shaking.

A Good Lantern-slide Developer.—H. J. L. Masse, in the *Amateur Photographer*, recommends the subjoined formula as adapted to all the lantern-slide plates now on the market :

Dissolve 2 ounces of sodium sulphite in 15 ounces of water ; then dissolve 30 grains of hydroquinone in 1 ounce of alcohol, and add the solution gradually (with shaking) to the solution of sodium sulphite. Then add, in any order :

Potassium Carbonate	2 ounces.
Sodium Carbonate	4 "
Potassium Bromide	40 grains.

Finally make up the bulk to 20 ounces with water. To each ounce of this developer add 2 to 4 drachms of water.

Pyro-Metol Developer.—At a recent meeting of an English society Mr. T. E. Bullen reported that he had been experimenting with various developers, and had found very extraordinary results from the use of pyrogalllic acid and metol in combination. The mixture possessed all the energetic qualities of the metol, and at the same time the density giving power of the pyro. Tests were made with a Warnerke sensitometer, to which two plates were exposed in the ordinary way. These were developed for ten minutes with a pyro-soda developer, and, at the expiration of this time, washed. He then tried to see whether they would go any further, and to one plate put a fresh pyro-soda developer, while the other was placed in a pyro-metol developer. The former seemed to have attained its utmost, however, and the second treatment had apparently no influence whatever. The second plate, however—that in the pyro-metol solution—developed up four or five more numbers on the scale; and, while the highest tint with the pyro-soda was about twenty, that of the pyro-metol reached twenty-four or twenty-five. Further experiments were made with two plates which were exposed in the same way, and developed, one with pyro-soda and the other with pyro-metol, from the commencement. This latter showed ten numbers and considerable density in the lower numbers before any image was shown by the pyro-soda, but the ultimate result was not so great, the pyro and metol having an advantage of three or four gradations. In reply to a question, he said he judged by the negatives.

Double-development is a great thing. For instance, you have a negative of delicate drapery to develop. First develop it until the drapery is what you desire. Then stop and thoroughly wash the plate. Now place the negative in a clear glass developing tray, and place the tray on the top of a box with an orange-glass lid. In this box place a light, so that you can watch the later operations. Now dip a soft brush in your developer, and go over those parts of the negative which need further development. You will be surprised at the results.

A developer for lantern-slides is given as follows :

A. Hydroquinone	100 grains.
Metabisulphite of Potash	50 "
Water	10 ounces.
B. Caustic Soda	100 grains.
Sulphite of Soda	50 "
Water	10 ounces.

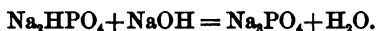
For use, take equal parts of each.

Hydroquinone Development.—It is said by eminent authority that the addition of a *small* quantity of potassium ferrocyanide (yellow prussiate) hastens development, and yields cleaner, clearer results. For every ounce of mixed developer add one to ten drops of a 10 per cent. solution of the ferrocyanide. Another formula advises dissolving the ferrocyanide along with the hydroquinone in the proportion of one part of ferrocyanide to every eight to ten parts of hydroquinone. This developer is said to yield fogless negatives with the most rapid plates.

Tri-sodium Phosphate in Development.—Tri-sodium phosphate, which has recently been proposed as a substitute for the alkali commonly employed in the devel-

oper, has not, as yet come into general use, partly for the reason that it is not readily obtainable in many localities. Soon after reading the accounts of its use for this purpose, published in the photographic journals, I obtained a supply of the salt and made some experiments with it in the developer, and a few notes on the salt and its action may be of interest.

Tri-sodium phosphate, having the chemical formula Na_3PO_4 , is the most basic of the salts of orthophosphoric acid. It may be prepared by the addition to a solution of the ordinary phosphate, Na_2HPO_4 , of an excess of a solution of caustic soda, the reaction being as follows :



This solution is then evaporated to saturation and allowed to cool, when the tribasic phosphate crystallizes out. The crystals are then to be drained, dissolved rapidly in twice their weight of hot water, and the solution allowed to stand to crystallize. The salt thus obtained is in the form of six-sided prisms containing twelve molecules of water of crystallization. It is soluble in about five parts of water at 60°F . A solution of this salt has an alkaline reaction, and, on exposure to the air, absorbs carbonic acid, being converted into the ordinary di-sodium phosphate and sodium carbonate; hence it is important to keep the solution tightly corked until wanted for use.

In making my developer I prepared two solutions as follows :

No. 1.

Sodium Sulphite, crystals	3 oz. or	90 gms.
Water	45 " "	1350 c. c.
Elkonogen	1 " "	30 gms.

		No. 2.	
Tri-sodium Phosphate	.	3 oz. or	90 gms.
Water	.	15 "	750 c. c.

For use, take of No. 1, 3 ounces (90 c.c.) and of No. 2, 1 ounce (30 c.c.), adding water if the developer works too rapidly, and bromide solution if desired in case of over-exposure.

This developer I find works very evenly and brings the negative up to a fair density. With most plates the amount of No. 2 may be increased at will without causing softening of the film, and with little danger of fogging, although some makes of plates do not take so kindly to a strongly alkaline solution as others. As an extreme test, I subjected a plate to the action of a saturated solution of tri-sodium phosphate, and then completed the development, obtaining a good negative. The fact that the proportion of alkali may be increased to such a great extent is of great advantage in the treatment of under-exposed plates, as it allows great latitude in mixing the developer and in adjusting its composition to suit the particular exposure.—F. L. PITTMAN.

CHEMICAL MANIPULATION.

Relative Power of Fixed Alkalies.—The relative values of the alkalies used in development are about as follows: Carbonate of soda, 2.8; carbonate of potassium, 5.0; sodium tribasic phosphate, 3. This latter has the advantage of not causing frilling if used in excess, and gives more details than the other alkalies.

Restrainers.—J. Von Norath writes in the *Zeitung* that the general notion that bromide acts as a restrainer in development is incorrect. It is possible that bro-

vide prolongs development, but iodide of potassium acts much more powerfully than bromide, and small additions of this salt to the developer will greatly prolong the time of development and give increased contrast in the negative. A practical demonstration of this may be had by making a negative of any subject with black lines on a white ground. Expose the plate twice as long as usual, and develop with a solution to which has been added 5 per cent. each of 1 in 50 solution of iodide of potassium and a 1 in 200 solution of bromide of potassium. The development will proceed slowly, but will produce an intense black-and-white negative.

A Reversed Negative.—A negative of medium intensity will give an excellent reversal on a gelatino-bromide plate exposed in a printing-frame for three or four seconds in full sunlight, and then developed by a suitable formula. By this means we can produce a very superior negative to the original one. For development, pyrogallol is recommended. This very simple method gives reversed negatives for the purpose of photo-mechanical work, as well as for carbons without the double transfer. It is extracted from the *Bulletin of the Havraise Society*. A similar method with development formula is given at page 261 of *MOSAICS*, 1897.

Litmus Paper and Other Indicators.—"Test-paper," as it is familiarly known, is as necessary an adjunct of the printing-room as it once was, in the day of wet-plates, in the dark-room; but the exact meanings of its changes of color are by no means well known. If the printing bath is acid, it is generally believed that a red color indicates its acidity; but, when we come to a question—one of more importance than is generally

understood—of the state of the toning-bath, the indications are more feeble and liable to misinterpretation. Some useful information on this point is to be found in the proceedings of the Paris Academy of Sciences, by H. Lescœur. He finds out that the change of litmus to red may indicate either acidity or neutrality. When phenol-phthalein is used, and a red color is produced, we are to assume not a change from acidity to alkalinity, but from neutrality to alkalinity. Poirier's orange No. 3 is colorless in neutral or alkaline solutions, and red in presence of acids; it therefore shows the passage of neutrality to acidity. M. Lescœur's final conclusion is that a really neutral substance is indicated by phenol-phthalein remaining colorless and litmus becoming red.—*British Journal*.

To remove developer or drying stains from negatives, immerse the plate as long as may be required in the following solution :

Thiocarbamid	20 grains.
Citric Acid	40 "
Chrome Alum	20 "
Water	4 ounces.

This solution may be used repeatedly until exhausted.

Iodine as an accelerator in development with hydroquinone.—The developer is made as follows :

Water	3½ ounces.
Sulphite of Soda (gran.)	62 grains.
Hydroquinone	15 "
Saturated Solution of Sal Soda	2½ drachms.
10 per cent. Solution Bromide of Potassium	15 minims.

To this solution is added 3 drops of an iodine solution, composed as follows :

Water	4½ drachms.
Iodide of Potassium	77 grains.
Iodine (scales)	{ 20 grains in 8 oz. of water.

This is said to accelerate development in a remarkable way, and the resulting color of the image is much blacker than without the use of iodine. The addition of more iodine solution than is here given produces fog and a reduction of density. The addition of smaller quantities of this iodine solution will also be found advantageous in the development of bromide prints, producing denser blacks and a clearer image than the normal developer.

Always-ready Hypo-solution.—Fill an 80-ounce bottle with water, and put in two pounds of hypo-soda. When dissolved the solution is of the required strength for plates. To fix albumen prints dilute the solution before use with an equal proportion of water; for collodion papers dilute with two parts of water to one part of hypo-solution. Use fresh solution for each batch of plates or prints.

The use of citric acid is suggested as a restrainer in place of potassium bromide when the modern developers—metol, etc.—are used. It is found that a 10 per cent. solution of citric acid gives greater power of restraint, and does not materially affect the duration of the time of development.

A good anti-halation backing for plates is made by dissolving 40 grains of shellac in an ounce of good alcohol. Clear the solution by shaking it up with a little chalk, and filter. Then add five grains of aurine. A few drops of this mixture are put on the back of the plate to be treated, and spread over the surface with the tip of a finger. The film is thin, but a perfect preventive of halation by reflection. It dries with a matt

surface in two minutes, and is easily rubbed off in development with a wet rag.

Frilling of plates can be effectually cured by the addition of a few drops only of formalin to the developing bath. Remember that formalin has an injurious effect upon the delicate tissues of the nostrils and eyes, and that a diluted solution is always preferable.

Sulphites and their Uses.—Among the substances used for preventing the oxidation of the developer when in solution, and for preventing stain, sulphite in some form or another is the agent most generally employed at the present time. There are various forms in which sulphite can be bought. Besides sulphite of soda, there is metabisulphite of potassium, acid sulphite of soda, and sulphurous acid. In all these the active agent for preventing oxidation, with its accompaniment of stain, is the substance sulphurous anhydride or sulphur dioxide, a gas of the formula SO_2 . The proportion of sulphur dioxide in any sample of sulphite determines its efficiency as a preservative. Crystallized sulphite of soda contains 27.4 per cent. of sulphur dioxide, and many commercial samples come up to this standard. On the other hand, many fall lamentably below it, mainly from two causes :

1. The sample has, by exposure to air during long storage, become oxidized—*i. e.*, converted into sulphate of soda, a body not only inert so far as preserving action, but also a restrainer of the developing powers of pyro. This deterioration in sulphite is rendered evident by the crystals losing their transparency and becoming crusted over with a dull, opaque powder.

Before such a sample as this is used for any purpose, some of the crystals should be placed in a cup, a little water thrown over them, and the crystals swirled round and round by giving a rotatory motion to the cup. By this means the surface crust of sulphate is dissolved—a second dose of water may be necessary—and the clear, pure crystals of sulphite may remain. These are pressed between blotting-paper to dry, and the necessary amount then weighed out. Sulphite which has been kept some time should always receive this treatment. It is, of course, best to prevent this oxidation taking place, but even when well-stoppered the salt suffers deterioration, particularly if the bottle is frequently opened. The most efficient plan for obviating this is to fill a stoppered bottle nearly full with coarse crystals of the salt (not powder), and to then pour over them sulphuric ether in sufficient quantity to cover the crystals. The ether will prevent access of air completely, and when the sulphite is required for use, all that is necessary is to take out a little with a spoon and lay it on a piece of paper for a minute or two. The ether, being very volatile, will very quickly evaporate, leaving the crystals dry. Care must be taken not to keep the bottle of ether in either a warm or a light place. Heat will evaporate the ether (or possibly burst the bottle) and light slowly decomposes ether, one product being hydrogen peroxide, a body which, in consequence of its powerful oxidizing properties, may cause the very evil which the ether is intended to prevent. Keep the bottle in a cool and dark place.

2. The sample may contain carbonate of soda. Most samples of sulphite are slightly alkaline in consequence

of this impurity, instead of being quite neutral. It may be known when a sample is alkaline by adding to a little of the sample dissolved in water a solution of phenol-phthalein dissolved in alcohol. A pink color is at once produced by an alkaline sample. When such alkaline sulphite is being used for making up developer, its solution should be made just acid before the developing agent is added. Citric is the best acid for this purpose, but hydrochloric or sulphuric may be used. The acid should be added in small quantities until a strip of blue litmus paper dipped into the solution is just turned red.—G. E. BROWN, in *Amateur Photographer*.

INTENSIFICATION.

A recent trial of the new platinum intensifier for gelatine negatives introduced by Willis & Clements confirms the general opinion formed by all who use it, that it closely approaches perfection. A new mercuric chloride intensifier is thus given in the *British Journal of Photography* :

Dissolve 20 grains of potassium sulphite in 20 ounces of water, and add 35 grains of mercuric chloride. After immersion in this solution (how long, the report does not say) the negative is washed and redeveloped. The results are said to be brilliant and intense. Another intensifier, with which we have had personal experience and can recommend, is given by Mr. Gustine L. Hurd, at page 195 of MOSAICS, 1897.

In the January issue of *Wilson's Photographic Magazine*, R. Ed. Liesegang contributes an article of unusual interest on "The Physical Action of Intensification," which should be referred to by all dark-room workers.

The ferrous oxalate method of intensification may be carried out in diffused daylight. If sufficient density is not obtained the process may be repeated to any required extent.

In the first place, all hypo must be carefully removed by thorough washing. If this has not been done, the hypo should be decomposed by the application of a bath of alum, or, better, a dilute solution (1 : 200) of hydrochloric acid. Then thoroughly wash and immerse in a saturated solution of corrosive sublimate, to each ounce of which a drop of strong hydrochloric acid has been added, till the image is bleached. Then wash for twenty minutes in running water, rinse with distilled water, and soak in this for five minutes. The treatment with distilled water is necessary, as the lime in the tap water would otherwise cause markings. Immerse the bleached and washed negative in a solution of ferrous oxalate, prepared by adding one part saturated solution of ferrous sulphate to four parts saturated solution of potassium oxalate. The image will now gradually blacken; when this blackening has extended to the back of the film, pour off the solution of ferrous oxalate and soak in distilled water for six minutes with three changes, and finally wash well.

If distilled water has not been employed, it is necessary to soak the plate after washing in a 1 per cent. solution of hydrochloric acid for a few minutes, to remove the oxalate of lime deposit; then rinse well, and set up to dry. Thorough washing is essential at each stage.

PRINTING METHODS AND FORMULÆ.

The unrest which accompanied the introduction of the modern print-out papers of recent years seems to have almost completely subsided. Albumen paper, although still largely used for commercial purposes, and by a few prominent workers in portraiture, has been practically replaced by collodion and gelatine papers. Carbon and platinotype papers are also more generally used than in previous years; and recently the new developing paper, Velox, has obtained a strong hold on amateur and professional photographers. A self-toning print-out paper has just been placed on the market, the preparation of which is held secret. It gives pleasing tones and is very simple in manipulation.

At present matt-surface collodion paper, toned with platinum, is in the lead for better class work, aristoplatino and vera matte being general favorites. For papers of this class the normal method of platinum toning is as follows: The print should be first soaked in salt and water for about five minutes, then well rinsed and toned in a bath composed of:

Potassium Chloro-platinite	2 grains.
Phosphoric Acid, dilute	½ ounce.
Water	8 ounces.

and then washed or, preferably, placed in a bath of carbonate of soda, 2 ounces; water 20 ounces, and then fixed. The use of this bath prevents any acid from being carried into the fixing bath, and thus prevents the decomposition of the hypo and consequent yellowing of the print. The particular formula given above is one which in our hands has given good results.—E. J. WALL.

Platinum toning for matt gelatine paper:

Distilled (or cold boiled) Water	10 ounces.
Chrome Alum	50 grains.
Chloro-platinite of Potassium	2 "

This bath may be used at once, and repeatedly, replenishing it when it refuses to tone with a little chloro-platinite solution. It tones very evenly. After toning the prints immerse them in a solution of 20 ounces of water, $\frac{1}{4}$ ounce of washing soda. Rinse in clear water, and fix in a bath of hypo-soda 3 ounces, water 20 ounces, for ten minutes.

Prof. Lainer, of the Imperial Institute of Photography at Vienna who has paid special attention to the preparation and toning of matt gelatino-chloride and collodio-chloride papers publishes in a recent number of the *Photographische Correspondenz* a method of toning which gives pure grayish black tones very similar to platinotype. This process is as follows: The prints, which must be rather deeply printed, should be washed in plain water for about ten or fifteen minutes and then immersed in an acetate bath composed of

Borax	100 grains.
Acetate of Soda	100 "
Water	20 ounces.
Chloride of Gold	10 grains.

till the red color turns to a brown. The print should then be washed and placed in the platinum bath, which is just half the strength of that we have recommended above. The print should then be well washed, and, if black or grayish-black tones are required, fixed for about five minutes in a 10 per cent. solution of hypo, and then washed and finally immersed in what Lainer calls a clearing bath, composed of

Chloride of Gold	2 grains.
Ammonium Sulphocyanide	2 ounces.
Water	20 "

in which the prints should be allowed to remain for from five to fifteen minutes and then well washed and dried. So far as our experiments with this bath have gone, it seems the best method of producing on matt-surface gelatino- and collodio-chloride papers the tones which are so much sought after with printing-out papers—viz., those of platinotype and bromide paper, gray and brownish-blacks. It is, therefore, well worth trial by our readers.

Another Platinum Toning Bath.—A. Cowan, in the *Munich Amateur Photographie*, recommends the employment of a 1 per cent. solution of chrome alum, without the addition and instead of plain water, for dissolving the platinum salt. The formula for the toning bath is as follows :

1 per cent. Solution of Chrome Alum	26 ounces.
Common Salt	16 grains.
Chloro-platinate of Potassium	2 "

The prints are placed in this bath immediately after printing, and any desired depth of tone may be obtained. If the prints are fixed immediately after toning no alteration of tone is observable, but if kept any length of time between toning and fixing, the tone is intensified by the continued action of the toning agent. This toning bath should be freshly prepared just before toning, and made up in quantities simply sufficient for immediate use. The fixing bath must be alkaline for successful results.

Double Toning.—By careful thought and study a printer may constantly improve. Double toning is a fine thing for odd effects when you use platino. Take a print, say an 11 x 14, printed in a tinted form. Tone

the print very little in the gold bath, just enough to clear the high-lights. Then wash it well, lay it on a piece of clean glass, dip a brush into your platino bath, and go carefully over the parts you want toned down. When the print is finished it will make a good sample for the show-case. Such things make good advertisements.

Warm Black Tones on Lithium Paper.—Wash the prints through several changes of water to remove all free silver, and tone in any gold bath (slightly alkaline) until the whites of the prints are clear. Then transfer to clear water. When all are toned put them through the following bath :

Water	32 ounces.
Sulphocyanide of Ammonium	¼ ounce.
Salt	½ "
Alum	¼ "
Gold	4 to 6 grains.

Tone till all warmth is out of the shadows, and immerse the prints directly in

Hypo	2 ounces.
Water	32 "

Fix ten to twenty minutes.

This paper, toned by above formula, gives perfectly pure whites, with rich shadows, and a perfect matt surface suitable for coloring or bas-relief work. Do not carry the toning in the first bath further than a cherry, nor wash between the sulphocyanide and fixing baths, as it is liable to cause a pink tint in the half-tones.

Albumen Prints from Very Weak Negatives.—Notwithstanding the growing popularity of print-out papers, the use of albumen papers continues for commercial work, and with some photographers for portraiture, because of the capacity of this paper for giving rich

gold tones. When it is desired to obtain brilliant prints from very weak negatives, instead of using a strong silver bath, Mr. Pabst recommends, in *Photographische Correspondenz*, the following procedure: Take a sufficient quantity of water and alcohol in equal parts to float a sheet of albumen paper, and add to the mixture 8 grains of common salt for each 3 ounces of solution, and from 30 to 150 minims of a 10 per cent. solution of bichromate of potassium, more or less, according to the degree of contrast desired in the prints. The paper is floated on this bath for two minutes and thoroughly dried in darkness. It is then sensitized in the usual silver bath. Chromate of silver is thus formed, yellowish or red in color, and it is this chromate of silver which gives the contrast in the print. The printing should be carried to a considerable depth until the shadows begin to bronze. The toning bath employed should be one containing sulphocyanide of ammonium or potassium with the gold. This is essential, because the albumen surface has been coagulated by the alcohol bath, and the bichromate has a tanning action, so that the use of sulphocyanide is needed to enable the image to take up the toning solution. For this reason also the immersion of the prints in the usual hypo fixing bath should be somewhat prolonged, that the solution may have time to thoroughly permeate the toughened albumen film.

Reducing Over-printed Silver Prints.—Mr. W. H. Sherman gives the following useful method from his experience: Make a saturated solution of ferricyanide (red prussiate) of potassium in a white glass bottle and keep it in diffused light. Mine stands on a shelf near

the skylight. Just how long it has taken to ripen, so to speak, I cannot tell. What I know is that it acts on a too-dark print like a charm. Here is the way to use it : Take of the fixing bath and water about equal parts, sufficient to immerse any print which needs reducing; add enough of the reducing solution to change the color of the other to about lemon-yellow, and mix well. If the prints are thoroughly toned and fixed they may be taken directly from the hypo, or they may be placed in the first washing water over night; in the latter case they may be taken out of the water and laid into the fixing bath again. Lay one at a time face down into the reducer, and quickly turn it over. As soon as it is as light as you want to have it, place it again, after draining, into the hypo for two or three minutes, then transfer it to the water with the other prints. A little practice will familiarize one with the details of the operation.

As it requires considerable time for a moderate light to overcome the harmful properties of this solution, it is advisable to prepare a new one by the time the old one is half used up. It is quite likely, however, that a short exposure to direct sunlight may have the same effect.

Reducing Over-dark Gelatine Prints :

Saturated Aqueous Solution Cyanide Potassium	. 15 minims.
Saturated Alcoholic Solution Iodine	. . . . . 5 "
Water	. . . . . 1½ ounce.

This works quickly, and the prints should be removed before they quite reach the desired tint.

Reducing Over-printed Proofs.—Immerse the prints in a bath made as follows :

Cyanide of Potassium	5 grains.
Liquor Ammonia	5 drops.
Water	1 pint.

As soon as the desired reduction is reached, wash prints in running water for twenty or thirty minutes. The illumination of the shadows of your picture is fully as important as the preservation of values in the lights.

Seed's Positive Celluloid Films.—Formerly the only method of securing photographs on celluloid was by the single or double transfer carbon process. By using the new positive films recently introduced by the M. A. Seed D. P. Co., however, pictures on celluloid, rough or smooth surface, and with a variety of tones, may be easily and expeditiously produced by artificial light—a single oil or gas lamp being sufficient for the purpose of exposure. Milton B. Punnett gives the following account of his experiments in the development of these films.

What would be the effect on an image, formed from a positive bromide emulsion, of varying the amount of sodium sulphite in an amidol developer? The experiments necessary to answer this question were made on Seed's new positive celluloid films.

No. 1. *First Experiment*, with the formula :

Amidol	1 grm.
Sodium Sulphite (dry)	4 grms.
Water	80 c.c.

It developed quick and clear, with a tone varying from black to olive-black, same as given by the metol-hydrochinone developer recommended in the printed formula.

No. 2. *Second Experiment*, with the formula :

Saturated Solution Sodium Sulphite.	160 c.c.
Amidol	2 grms.

The resulting image did not have as much snap as in the previous experiment, but the color was a fine blue-black. The blue was more pronounced than I had ever seen before in an image developed from a bromide emulsion.

No. 3. *Third Experiment*, with the formula :

Solution No. 2.	80 c.c.
Amidol	2 grms.

The solution from the second experiment was about saturated with amidol, as very little, if any, of the two grammes would dissolve. Filtered and an equal amount of water added, this developer gave a fine, rich black image.

An analysis showed that a developer of similar constitution could be made by taking

Sodium Sulphite (crystals)	150 grms.
Water	400 c.c.
Amidol	5 grms.

The keeping quality of this developer is not as good as a more dilute solution, and seems to diminish with an increase in the amount of amidol.

While experimenting some time ago with amidol developers, I found that an addition of hydrochinone had a tendency to preserve them. The following developer can be taken as a fair sample :

Amidol	2 grms.
Hydrochinone	1 grm.
Crystallized Sodium Sulphite	18 grms.
Water	400 c.c.

Experiments showed that the hydrochinone in this formula had little, if any, developing action.

Carbon Prints and Platinotypes.—It so happened a few weeks ago that I had an opportunity to look over some of the best work produced during the past two or

three years by about a score of our most notable professional photographers. What a treat it was! In the collection were pictures from the studios of Stein, of Milwaukee; Strauss, of St. Louis; Steffens, of Chicago; MacDonald, of Albany; Davis & Sanford, Hollinger, Gilbert, Ess & Eppinger, Mendelssohn, Falk, Anderson, Rockwood, Dana, Dupont, Cox, the Carbon Studio, and Alman, of New York; Appleton, of Dayton; Phillips, Gilbert & Bacon, and Bridle, of Philadelphia. There were some others whose names I have forgotten, but the list given is enough to cause the average reader's "mouth to water." They (the pictures) were grand. Photography seemed to be uplifted. But to describe their beauty, delicacy of line, and light and masses, their ever-varying gradations of tone and tint, their rich depths accentuated by most carefully controlled effects of light, is beyond my pen, and I will not attempt it.

One thing, however, I brought away with me and made my own—a conviction that the photographer who seeks to achieve the highest possibilities of his art, and equally the man whose ambition is bent on making the most profitable sort of work in photographic portraiture, *must* use, more or less exclusively, either the carbon or the platinotype printing process. The following of imitations, however subtle and alluring, will not do; for those who would be first, the real thing is an essential to success.

"Upon what ground, asks Self-complacency, "do you base so bold and sweeping an opinion?" If, indeed, it was only an opinion I would not venture to assert it with so much freedom. For I am, withal, a modest

man among my fellows, though as enthusiastic as the loudest of them where fraternal help is concerned. But what I have stated is so strong a conviction that I am constrained to ease my mind by its expression. I will explain :

In the collection of work mentioned I saw the selected efforts of men who are admittedly unsurpassed in their profession. The wonderful possibilities of photography in its highest and noblest application—portraiture—revealed themselves, as the beauties of a landscape are discovered when the sun emerges from behind a cloud, as my eye wandered from one picture to another. And every picture was either a carbon or a platinotype ! What a remarkable pronouncement lay in that fact; what a triumphant unanimity ! When the master minds were brought together on the great question of the best available method of projecting upon paper the magic image given by the lens there was seen but one opinion, that the choice lay between two processes, carbon and platinotype. Here surely is an idea of value to those who are striving for advancement.

Then the other side of the matter, the monetary value of the opinion, is worthy of a thought. The men who so decidedly pronounced in favor of platinotypes and carbons as the highest and best of our printing processes are those who secure the most remunerative prices for their work. Is not that a significant fact ? Does their opinion in this important matter of the print result from their high prices, or do the high prices result from their following of the opinion ? The sensible man will judge for himself.—THOMAS AQUINAS.

Carbon Printing.—It has been said that the carbon

process is one of the most difficult to work ; well, so it is ; but what of that ? Are we going to let such a process with all its advantages be unused because it is difficult to work ? If we are enthusiastic workers we will be content with no process but the best ; besides, half the pleasure is in the mastering of a method. There will be failures at first ; but never mind the failures ; if a good negative of a subject which will make a picture is possessed, spoil half a dozen, or, if necessary, more prints, but get one good and permanent result in a suitable color, and you will be proud of it. This sort of thing will be found expensive, and fewer negatives will probably be made ; but all the more care will be taken in the production of those few ; therefore the standard of work will be raised, not only in the printing, but in the negative-making. There is no doubt that the ease with which we can multiply our prints makes us more careless in their production than we would be if only one impression could be taken ; then we would find no process too difficult for us, and we would do everything in our power to insure a beautiful and permanent result. I fancy we are too apt to have the feeling that, as we always have the negative, it does not matter very much whether the prints taken are first-rate or not. We can do something better at any time.—J. B. JOHNSTON.

To quickly dry sensitized carbon-tissue in damp weather immerse it after sensitizing in a bath of alcohol for two or three minutes, and afterward squeegee it, face down, on waxed or collodionized glass. It is then put into a wooden box, previously well dried before the fire ; the tissue will dry in a few hours.

Matt-surface Carbon Prints.—With the commercial

temporary support glazed prints are obtained, and it is sometimes desired to obtain matt-surface prints. The best way of doing this is to obtain a sheet of matt-surface opal, wax it, coat with enamel collodion, and wash till it no longer repels water, and squeegee the exposed tissue on to this, and developing, and then transferring to the final support.

The final support may be opal, wood, metal, ivory, or any polished surface, or specially rough or hand-made drawing papers. In such a case the surface must be prepared by coating with the following :

Heinrich's Gelatine	320 grains.
Distilled Water	20 ounces.

Soak for four hours, dissolve by the aid of heat or a water bath. Dissolve also

Chrome Alum	12 grains.
Distilled Water	4 ounces.

and add gradually, with constant stirring while warm, to the gelatine, and then filter through fine linen. The final support must be thinly coated with this.—*News.*

THE BICHROMATE GUM (OR DIRECT CARBON) PROCESS.

This artistic method of producing permanent prints in any color is a revival of the direct carbon process given by Blair in the early years of photography. It has attracted considerable attention during the year, and its adherents are growing in number as the possibilities of the process become better understood. Mr. George Ewing gives, in the *British Journal*, the following résumé of the method as at present practised :

Paper.—Any close-grained, well-sized paper will answer, though Messrs. Henneberg and Kuhn recom-

mend specially the drawing and water-color papers prepared by Schleicher and Schull, and the "Montgolfier" paper described by Mr. Demachy. This latter can be had either in white or in cream, and other warm tints, and, when the grain is close, gives most brilliant prints. More open-grained papers, Mr. Watzek says, retain the color better, and give half-tones more easily; but Messrs. Henneberg and Kuhn assert that the rough English makes do not give pure white.

Sizing.—Whatever paper be employed, it will be advisable to size it. For this purpose starch or flour may be used, two to four parts of starch being taken to a hundred parts of water, according as the surface of the paper is more or less rough. Dr. Just, of Vienna, sells nine varieties of paper ready-sized for coating.

Colors.—The quality of the colors used is of the first importance, and our authors are particular in recommending certain manufacturers. Watzek suggests the use of pigments manufactured either by Winsor & Newton, of London; Schmincke, of Düsseldorf; or Pailard, of Paris; but finely ground pigments of other makers will, no doubt, serve equally well. All colors are not suitable. Blacks, whether animal, ivory, or lampblack, give the best results; blues, particularly Prussian blue, ultramarine, or indigo, are nearly as good; but browns are exceedingly difficult to work. Besides the blacks and blues named, burnt sienna and English red may be used; other colors had best be left alone.

Character of Negatives.—For the best results, transparent and soft, but by no means weak, negatives should be used. The style of negatives that give good enlarge-

ments is what is required. It is possible, however, by varying the proportion of gum and pigment, to obtain very successful prints from negatives of any character. Dr. Henneberg and Kuhn state that, by using burnt sienna, they have succeeded in securing excellent pictures from negatives that were too harsh for ordinary printing-out paper; and they lay down as a general principle that the more gum used the more pronounced the gradation of tones, and that an increase in the quantity of color tends to softness.

Gum.—The gum to be used is the ordinary gum arabic sold by stationers for office use. Mr. Watzek prefers to use a 10 per cent. solution, with the addition of a few drops of phenic acid as a preservative; but Messrs. Henneberg and Kuhn recommend a solution containing equal parts by weight of gum and water, without any preservative. Their experiments having shown that the longer the gum solution is kept the more sensitive it becomes, they prefer to let the solution stand till it becomes mouldy, and to then filter it for use. In this state it will keep for a long time without deterioration.

Coating the Paper.—The sensitive coating is prepared by pouring into a graduated glass measure, in equal quantities, first the gum solution, then the pigment, and lastly a 10 per cent. solution of bichromate of potash, and mixing them *thoroughly*. It is advisable at this stage to test the quality of the mixture by coating thinly with it a small strip of waste-paper. After drying, the surface should show the dull lustre of the crude gum. The brilliancy or otherwise of the coating is, in fact, of the highest importance; for, if the layer is too brilliant,

it indicates that there is too much gum, which will disappear with its contained color in the subsequent operations, and, if the coating is very dull, the shadows of the picture will be choked. Between these two extremes a variety of changes can be rung to suit the subjects to be depicted. As on the quantity of gum depends the grain of the image, a sufficiently large proportion should be used for landscape to secure brilliancy, and a correspondingly small quantity should be employed for portraits. In this matter each photographer must work out his own salvation. The right proportions of the constituents having been settled, the paper selected for printing is coated, in yellow light, with a thin layer of the mixture. For the purpose use a large and broad brush fully charged with the sensitive gum solution, but be careful to avoid all brush-marks or other unevenness, and to lay on the coating so thinly as to permit of the underlying paper being seen. When the ground has been laid, go over it with a badger's-hair softener or broad camel's-hair brush, so as to secure a perfectly even coating, for on this depends success or failure. The coating having been satisfactorily distributed, the paper is to be dried quickly over a stove. It is essential that the paper be absolutely dry, otherwise the color will dissolve in washing; but care should be taken to avoid scorching, as that would produce indelible marks.

Printing.—Paper prepared as directed may be kept for a few days, but it is always advisable to use it as fresh as possible, preferably immediately after sensitizing. At this stage the technical skill of the worker will have most occasion for display, since good results are obtainable only from correct exposure, and the

length of exposure depends on the quantity of gum in the coating—more gum, more printing. As the light impression is not visible till after development, the depth of printing has to be judged by a photometer. Any one of the photometers commonly used for carbon work will do, though our authors employ Fernande's, and find that the blue-black tints require from 3° to 4° on that instrument (*i. e.*, about two minutes in sunlight), black colors from 4° to 6° , and brownish-yellows about 10° . Mr. Watzek says, however, that the exposure, on a fine winter day and with a soft negative, should range from a quarter to half an hour, the difference depending on the color of the prints and the quantity of the bichromated gum in the film.

Development.—After printing, the paper is immersed in a dish of pure cold water, which is changed every few minutes, until it ceases to show any trace of yellow caused by the bichromate in the coating. Once the bichromate has been eliminated, the further operations can be comfortably carried out in daylight. If, now, the exposure has been correct, the outlines of the image will soon show themselves at the points of greatest contrast, and the highest lights will appear in the cold water. Rock the tray for about five minutes, and then add a small quantity of tepid water of about 70° F., increasing the temperature from time to time till the image commences to appear. Now carefully lift the print on to a sheet of glass, cautiously avoiding contact with the surface, and, holding it over the basin, keep pouring water on the picture. If the exposure has been too short, development will soon be completed, but the image will be weak. Over-exposure, on the other hand,

will cause the image to hold back, and in that case recourse may be had to the sawdust soup recommended by Artigue to bring out details. Finally, replace the print under water, and, by means of a soft and fine brush, remove the parts that offer the greatest resistance, clearing up the portions that appear too dark and eliminating useless detail. Proceed, however, with the utmost caution so as to avoid marks, and do not allow the passion for "artistic" results to annihilate photographic excellence.

After Operations.—Development having been completed, the print is immersed in a 10 per cent. alum solution, to remove the last traces of bichromate, and, after thorough washing in cold water, is dried. It should then be varnished with any good crystal varnish, as that gives depth and transparency to the colors, particularly to those, like umber and burnt sienna, that have a tendency to appear too deep.

Final Remarks.—Printing in clouds from a second negative is not possible unless, after development, the sky portion is resensitized, printed on, and redeveloped. By this second sensitizing, however, effects in two colors may be produced. Certain authors recommend the use of soda and acids in development, but Kuhn is distinctly opposed to their use, as they diminish the intensity of the shadows.—*British Journal of Photography.*

PLATINOTYPE PRINTING.

Platinotype Paper.—The growth of the popularity of platinotype prints has brought us many inquiries whether photographers cannot prepare their own paper in small quantities as desired. Our advice on this point

has been that it is simpler, cheaper in the end, and more satisfactory to get the paper from the manufacturers, Messrs. Willis & Clements. For those who desire to experiment, however, the subjoined formulæ from the *Amateur Photographer* may be useful. Make two solutions :

		A.	
Potassic Chloro-platinite	. . . . .	60 grains.	
Distilled Water	. . . . .	4 drachms.	
		B.	
Ferric Oxalate.	. . . . .	60 grains.	
Water	. . . . .	4 drachms.	

Keep in a dark place. For use, mix equal parts of A and B, and coat arrow-root-sized paper with it by means of a tuft of cotton-wool or piece of soft sponge. The mixed solution must be used within ten minutes to secure the best results, and the coated paper must be dried quickly before a fire. Develop with

Sodium Citrate	. . . . .	120 grains.
Water	. . . . .	1 ounce.

Acid bath and washing as usual.

But he may require an even warmer tone than can be produced by either of the foregoing suggestions, and uranium may be usefully used in this behalf.

The following is the formula I have found satisfactory :

A.—Uranium Nitrate	. . . . .	10 parts.
Acetic Acid	. . . . .	10 "
Water, to	. . . . .	100 "
B.—Potassium Ferrocyanide	. . . . .	10 "
Water, to	. . . . .	100 "
C.—Ammonium Sulphocyanide	. . . . .	50 "
Water, to	. . . . .	100 "

Immediately before use add 1000 parts of water to 10 of each solution, and keep the prints moving well below the surface until the required tone is obtained.

Another method of obtaining a brown tone is the one suggested and introduced by Mr. Packham. The requisites were, for some time, obtainable at the dealers, but I have missed them lately, and therefore I do not think I shall be wronging the discoverer by publishing what I believe to be the formula: 2 drachms of ordinary dyer's catechu (commonly called cutch), of best quality and cleanliness, boiled or scalded in 5 ounces of water, to which one ounce of alcohol is subsequently, when cool, added as a preservative. For use, take water at 130° F. 20 ounces, and the above solution 35 minims.

It is questionable whether blue-tinted prints are suitable for photographs, and it is only in very few cases that they will help the representation, but they may easily be produced in platinotype by using the following iron-toning bath :

A.—Ammon. Iron Alum	10 parts.
Hydrochloric Acid	10 "
Water	100 "
B and C as before.	

Immediately before use add 5 parts A, 2 parts B, and 5 parts C to 1000 parts of water, and immerse the prints as before.

Both of these two baths, and the former especially, are particularly useful in intensifying weak prints, and making what would otherwise be only fit for the dust-bin into presentable pictures.

Unless an actinometer is used there is a danger of obtaining weak under-exposed prints. These may be intensified with platinum by using the Hübl formula, as follows :

1.—Sodium Formate	48 grains.
Water	1 ounce.
2.—Platinum Perchloride	10 grains.
Water	1 ounce.

For use take

[illegible]

and immerse for about fifteen minutes, wash and dry.

METOL AND GLYCIN DEVELOPERS FOR BROMIDE PAPER.

Glycin works as well with bromide paper as it does with plates, giving clear, brilliant images, with suitable density and soft modulations, and working, too, without the slightest tendency to fog. But alone, despite its energy, it moves too slowly even to suit the lazy pacing-gait of the disciples of the slow-coach school.

Fifteen or twenty minutes do seem a prodigal expenditure of time when the same results, not one jot or tittle less in beauty or brilliancy, can be achieved in two or three minutes, and that, too, without the risk of encountering fog.

Rapid work, perhaps the most rapid work, can be done with metol, and it can be pushed very far with increase of stimulants, but there is great liability to fog. I think that rapidity of such a degree that it prevents one having any control over the evolution of the latent image is undesirable, and especially so with bromide work. One likes to see the image come up rather slowly, to watch the gradations as they build up, and the deepening of the shadows, so as to check exactly at the right point and avoid too great density and hardness, for after-treatment of the image, either for reduction or intensification, is out of the question, and is never resorted to by good workmen but in extreme cases.

I therefore hailed glycine as a special gift for bromides, and fairly rejoiced on account of its slowness of action.

I shall not detain you with any further talk on the subject of bromide development, but simply recommend my method for giving good results. I make the following solutions :

A.			
Glycine			75 grains.
Metol			10 "
Sulphite of Soda			3½ ounces.
Carbonate of Potassium			3½ "
Water			40 "

Also a second solution :

B.			
Glycine			40 grains.
Metol			8 "
Sulphite of Soda			600 "
Water			16 ounces.

You will notice that the latter (B) contains no carbonate of potassium. It is employed to increase the density.

I first subject the print to the action of Solution A, and if it progresses in development gradually and grows in intensity in a minute or so, I allow it to continue in the developer ; but if indications are shown that it needs more density—that is, is lagging somewhat—I add a measure of Solution B as a stimulant. However, do not be too precipitate in expediting the evolution, and so probably spoil your picture. If there is evidence of overtoning, dilute with water and a few drops of bromide, but I imagine the print is always softer for the omission.

If you think you have rather undertimed your print, take one measure of A, one-half measure of B, one-half measure of water.

Wash the developed print in two or or three changes of water, and fix in weak, freshly made hypo. To avoid blisters, let the first wash-water contain a little common salt.—JOHN BARTLETT.

PREPARING BROMIDE ENLARGEMENTS FOR COLORING.

Prints that are to be finished in oil should receive a coat of warm (not hot) size made by dissolving 10 grains of gelatine in an ounce of warm water. It should be applied with a flat camel's-hair brush. With some makes of paper this is not absolutely necessary; but it insures freedom from any trouble due to "running."

The Eastman Company recommends a good preparation for prints that are to be finished in water-colors. The chief trouble in using water-colors on a gelatine surface is the streakiness that is almost inevitable. This can be avoided by use of the following mixture:

A.

Bleached Shellac	4 ounces.
Alcohol	8 "

Dissolve and let stand at least twenty-four hours.

B.

Clear part of A	4 ounces.
Alcohol	4 "

Filter before use.

Fill a "spray diffuser" with Solution B, and spray the enlargement all over, not thick enough to run, but just enough to look wet for an instant when first applied. As soon as dry (say in ten minutes) the color may be applied as to ordinary paper. Wash freely and boldly, and, if the color shows signs of washing up on any part of the print, spray some more of Solution B on top of the color; it will do no harm.

Prints that are to be finished in pastel should be prepared thus: Dip a tuft of cotton in pulverized pumice, rubbing the powder well into the cotton. Then spray the print with Solution B, and then hold the tuft of cotton over its surface with one hand and pat it with the other, to cause the dust of the pumice to fall evenly and settle on the face of the print. Apply the spray again to fasten the pumice, and, if more "tooth" is required, dust and spray again. After this treatment pastel can be worked as easily as on pastel paper; the enlargement will show clear and bright through the pumice, and the pastel will hold firmly. After using the spray diffuser, always blow a little clean alcohol through it to prevent it becoming stopped up with gum lac.—W. E. HENRY, in the *Amateur Photographer*.

IMITATION ENAMEL OR "BURNT-IN" PICTURES.

Without a gas-muffle furnace which can be raised to a cherry-red temperature the production of burnt-in photographs on ceramic ware is a process that is impracticable and, therefore, denied to those with only limited means of gratifying their photographic tastes. The following process for making imitation ceramic photographs was suggested nearly twenty years ago, and it offers possibilities well within realization without recourse having to be had to out-of-the-way or costly appliances.

The imitation "enamel" is simply a photograph on a vitreous support, such as porcelain, upon which it is japanned, so that after completion the surface is very hard and durable, and has an essential resemblance to

many articles of domestic utility which have undergone the japanning process.

The process is briefly this: A carbon print is made on the final support, which may be of glass, metal, or porcelain, or, indeed, any suitable substance which will stand a considerable degree of heat. After the print is developed, its surface is japanned, an operation which consists of coating it with a suitable varnish in successive thin layers, and then subjecting it to the necessary fixing temperature. The varnishes recommended for the purpose are amber and copal, the former being said to yield the harder film, while the latter is the whiter of the two. "Stoving" varnishes are those it is necessary to employ. The term "stoving" denotes the operation of applying the required degree of heat. Apply the varnish with a camel's-hair brush, each successive layer being added only when the previous one is dry, drying being accelerated by moderate heat. The "stoving" consists of keeping the plaque at a temperature of about 180° to 200° for some hours, when it is allowed to cool. The surface is next polished with pumice powder, next with tripoli and oil, and, finally, with putty powder. A brilliant hard surface should now have been obtained. The necessary degree of heat mentioned may, of course, be easily had at home by permission of the lady who is privileged to possess control over the kitchen. Of course, the carbon positive may be colored before being japanned.

From the description given it will be seen that the process is extremely simple and quite within the capabilities of any intelligent worker.—*News*.

Photographs on Enamelled Iron.—A London syndi-

cate is introducing pictures produced on and subsequently burnt in enamelled iron by a patented process. Plates up to 17 x 22 from portrait or landscape negatives may be had by this process, which suggests itself as useful to the photographer for his public displays where light and exposure would ruin any of the usual kinds of pictures. It is said that the cost of these pictures "from the photographer's own negatives" is approximately that of bromide prints, and there is a large variety of pigments from which choice may be made as to color, etc.

PHOTO-RELIEF SCULPTURE.

During a recent visit to the Rockwood studio we examined with considerable pleasure and interest a number of examples of a new process by which photography advances a step further as the reproductive art *par excellence*. Bas-relief photography is a matter with which all photographers are familiar. A Mr. John Baynes, of Stamford, Conn., aided and advised by Mr. Rockwood, has brought this process to perfection. This he does by producing a portrait in a proportionately graded bas-relief, *in a solid, by means of light*, and he claims that there is no limit to the height of the relief so obtained. The portraits, or reliefs, were those of Abraham Lincoln and of the inventor of the process. They were executed in plaster and exhibited the most delicate modulation of light and shade, such as we see in the newly minted medal.

"This first medallion of the new process," said Mr. Baynes when questioned about his discovery, "proves

that light can be used in the production of actual forms in works of art. Nor is the presence of the desired object necessary. This portrait of Lincoln was taken from Marshall's painting, and its border from a drawing. It is really a portrait, recognized as containing every detail of the well-known face of the martyred President. In the most carefully executed medals by the old process there cannot be found the refinement of expression and the precision and certainty here manifested. It exhibits a subtlety of movement of surface unequalled by the product of any tool heretofore used. The modelling possibilities of this old tool, light, now first successfully applied for that purpose, are limited only by the inventive and imaginative faculties of the artist."

The practicability of this new process means a revolution in numismatics and in kindred arts, such as stamping plates for book-cover decoration, embossing dies for stationery, and other uses, and pattern-rollers for ornamentation of base and precious metals, and for silk and cotton fabrics.

Mr. Rockwood is connected with the inventor of this process as an expert photographer. The possibilities of the process for the production of bas-reliefs in any size or material from photographic negatives, for decoration and similar purposes, will be obvious. The method is as yet held secret, but will probably be introduced commercially. An illustrated article devoted to it appeared in the New York *Herald* of May 30th.

PHOTOGRAPHING MEMORIALS, TOMBSTONES, ETC.

It is manifestly impossible to know exactly what the effect of a building or a monument will be on a given site until after the completion of the same in place, however desirable such knowledge may be; but I have gotten a satisfactory approximation by the process about to be described.

Having determined the size which the base of a proposed monument, for instance, shall measure, I lay it out on the plot in question, marking each corner with a stake which will show prominently in the photographic view of the lot as a whole, which I then proceed to make. It is next necessary to construct in wood or plaster a model in miniature of the proposed design to a scale; an inch to the foot is convenient. This model having been painted or colored so as to approximate to the tone of the material to be used, a negative is then made of it, with especial regard to two things: First, that the lighting shall be as like as possible to that of the view of the lot, so that the shadows may harmonize; second, that the size of the image on the ground-glass shall be so regulated as to coincide with the corresponding dimensions indicated by the stakes on the view negative. A light background is preferable.

The negatives having been obtained, the next problem is to get a combination print. Of course, this may be accomplished by masking the print from the view negative, so as to leave a space in which to print the image from the model negative, complementarily masked. But this is troublesome and does not give good results, owing to the white line which is usually

left around the openings of the masks. In practice it has been found much better to make an albumen print from each negative, tone them alike, and after drying to cut out carefully with knife or shears the image of the model, and paste it directly on the face of the other prints, after mounting, in its appropriate place. The edges of the cut-out piece may be shaved down so as to make them adhere closely and conceal the thickness of the paper, or this can be modified by the use of a spotting brush and ink. I have produced several results in this way, in which, when framed under glass, the proposed work can hardly be distinguished from that already existing and included in the general view.

As a matter of fact, making due allowance for the small size of the model, the representation of the final appearance of the ensemble is perfect. Naturally the effect of different sizes can be studied, and mistakes thus avoided.—C. W. CANFIELD.

PHOTOGRAPHING SNOW AND ICE SCENES.

Photographing ice and snow is not the easiest occupation of even those who have had considerable experience in photography. There are certain conditions necessary, or the results will be anything but satisfactory. Much depends on the light, much on the exposure, and much on the development. Study the subject before the lens is pointed at it, and study it on the ground-glass, too. When your head is under the cloth you will perceive a number of ghost-like reflections, everyone of which must be exorcised or they will materialize on your negative.

The first great precaution is to be sure that no extraneous light enters the camera from reflections, from brass-work, the diaphragm, or the lens itself. Any bright surface, however small, acts like a tiny mirror and some little inquisitive ray will steal into the penetralia. All rays are verily thieves and robbers that do not enter through the door of the lens. Do not forget that you are working in the very midst of a light-reflecting material which becomes all the more intense when the sun is shining upon it.

You must protect your camera from the bright light by covering it over with the opaque head-cloth while focussing, while drawing the slide of the plate-holder, and while returning it after the exposure. The plate-holders, with the sensitive plates, as well as the exposed plates, should be kept in a case or wrapped up.

Moderate sized masses of ice and snow often form by themselves beautiful subjects to photograph. When no object of comparison is near by to judge of their actual dimensions the effect is enchantingly deceptive, the innumerable grottoes and stalactites of icicles presenting the appearance of vast caverns with endless windings in which one could fancy gnomes and elves wandering about. Then, too, rocks covered with ice and hung with icicles are most beautiful in the contrasts of rough and smooth, the dark and glittering; but they are difficult to manage in the development.

Overtiming is probably the besetting fault of the snow-photographer. It is so hard to realize the quality of light reflected from the snowy surfaces; but I think it is better to err in the direction of over-exposure than to give too short a time. We can, in a measure, remedy

too strong action of the light, but there is little hope for saving a plate, by any of the therapeutics of photography, when insufficient exposure is given upon a snow scene.

Endeavor to get as near as possible to correct exposure, for success alone depends upon it.

Modification of the developer must not be too much relied upon to make up for the so-called "latitude of exposure."

Experience can alone reach the goal of correct exposure. I have never seen a good snow or ice scene taken by the "push-the-button formula."

Know also your lens and the plate you are working with.

Sometimes a view is presented to the eye which promises to give a beautiful picture—high-lights relieved against more modulated shadows—but look out for halation.—JOHN BARTLETT.

PHOTOGRAPHING GROUPS.

In no branch of photographic technics, says a writer in the *British Journal*, more than in the taking of groups of people has the introduction of the Jena glasses brought about such important changes of methods as modern lenses render possible. Until quite recently, if it were desired to take a portrait group, the work was hedged in with so many difficulties and restrictions that, not infrequently, no satisfactory result was obtainable. Did we wish to work with a quick exposure, a standpoint removed to a considerable distance, sometimes impossible to obtain, was a necessity, for the lens was not

made which, with full aperture, covered sharply to the edges a plate whose length in any way approached the length of the focus. To work to that extent, a very small diaphragm had to be used, with the concomitant increase of exposure. True, this increase is minimized by the general acceleration in the speed of plates as now made; but, even allowing for such a gain, the advantages are all on the side of the new lenses, which cover sharply and with full aperture an area with a diameter equal to the focus of the lens.

Then, again, unless an almost microscopically small diaphragm was used, so as to make the depth of definition almost infinite, very great care had to be taken to arrange the figures so that their front line assumed a horseshoe shape, flat fields being unknown, the only way of getting all the figures in the focus with full, or nearly full, aperture being so to arrange them by bringing the outer figures near enough to lengthen the focus of the outer pencils that they came to a point in the same plane as those in the centre. One consequence of this arrangement was that, if sharpness was aimed at, the figures near the edge of the group became very disproportioned, sometimes ludicrously so. While on this topic, it is well to point out a fact which is very frequently lost sight of, if not actually unknown. Naturally, it is not every photographer who is provided with brand-new lenses; in fact, the conservative instinct of the old practitioner leads him to prefer his old and tried friends, his lenses, and to disbelieve that there can possibly be anything better; and to these users it is that our more immediate remarks apply. Most photographers are aware of this necessity of grouping figures

along a curved line to get them sharp toward the edges; but, where the lack of knowledge, or, what amounts to the same thing, its application, comes into force, is when the group is a very large one, or widely spread from right to left, and the camera is at a considerable distance away. Under these circumstances it would be necessary, if the curve formation is to be utilized to flatten the field, for the outer figures to be brought so much nearer they would appear as giants compared with pigmies in the centre. The curved formation is only available when the subjects are comparatively near.

If we were called on to summarize the best conditions for group-taking, we would say, first, a lens of modern construction; next, one of a small focus, in other words, intended for a small plate; and, finally, absence of direct sunlight, either through the sitters having their backs to the light, or, still better, the presence of clouds to obscure the sun. Lastly, it must be noted that, if the group be taken against the sun, no satisfactory result will be attained unless the lens have a perfect sunshade.

ARE PHOTOGRAPHERS ARTISTS?

It appears to be hard for a certain class of painters to concede that photographers are artists. Certainly to insist that a photographer is necessarily an artist would be as absurd as to broadly deny him that distinction.

If a photographer has, so to speak, his camera running in a fixed groove, his posing chair nailed to the floor, his curtains and screens stationary, tells his patron to go and sit down on that chair, exposes his

plate so many seconds, and trusts to luck and ready-made developer for the balance, he ought to blush every time someone refers to him as an artist. He is, however about as much of an artist as some of those using brushes and paint, making daubs on canvas that they call pictures.

The possession of a camera and dry plates, and even a skylight, does not make one an artist—neither do brushes and paint. It is the use one makes of whatever material at hand that will show whether one is an artist or not.

When a photographer or painter, through study and investigation, has so far become master of his profession that he so poses, lights, and handles his subject as to bring out the best there is ; subdues the weak points and emphasizes the good ones ; makes judicious use of backgrounds and accessories ; and in all after processes so manipulates that he reaches the happiest result in the finished picture, it matters not whether the result is fixed on a photographic plate or on canvas. He has certainly shown that he is in possession of artistic skill and ability. A person not so qualified cannot even do the minor things, such as trimming and mounting a picture correctly. A mechanic can trim it perfectly square and with even edges, but unless he is something of an artist he will utterly fail to allow the proper spaces so as to give each picture the best effect. He will be liable to choose the wrong color of mount, and, if a photographer, would be sure to make use of the too common error of a gaudy display of his name and address in bright red or green on the foot of his mounts. I think I can tell whether a photographer has any artistic

feeling by simply noticing how he has his cards printed. I often wonder why patrons of good taste do not seriously object to this vulgar display on their photographs. It is a kind of loud advertising which has no parallel in any other art, and I am glad to see that, in many instances, the impertinence of the thing is recognized. —H. L. OLSON, Montevideo, Minn.

PROGRESS.

Collotypes Vitrified on Earthenware.—At a recent society meeting in London Mr. H. Snowden Ward exhibited some examples of collotype printing vitrified on earthenware tiles by a method devised by Mr. Grundy, who has applied the principle of multiple impression to collotypic work on earthenware. The collotype plate is inked with a fatty ink containing an under-glazed pottery color, and repeated impressions are made upon the tile to be decorated, suitable precautions being used to secure perfect registration. The tile is then fired and glazed in the usual way.

Efforts are being made to establish, at the British Museum, London, a national photographic record and survey collection.

Collodion Emulsion and Developer for Dry Ferrotypes Plates.—The *News* gives the following formulæ: Dissolve 50 grains of silver nitrate in 50 minims of distilled water, and add sufficient strong ammonia to form a clear solution, and then add 25 minims of absolute alcohol. Dissolve also 32 grains of ammonium bromide in 35 minims of water, and 50 minims of absolute alcohol, and heat gently till dissolved. In another bottle dis-

solve 24 grains of pyroxyline in 600 minims of equal parts of ether and alcohol, and to this in the dark room add the above silver solution, shaking well, and then add the bromide solution, gradually shaking between each addition; allow to stand for two or three minutes, and then pour into about 5 ounces of distilled water; collect the emulsion, and allow to drain; cover with absolute alcohol and leave for twelve hours, and then pour off the alcohol and add to the emulsion 500 minims of alcohol and 500 minims of ether in which $\frac{1}{2}$ grain of narcotine has been dissolved. The best developer is A. glycin, 10 grains; sodium sulphite, 25 grains; water, 40 minims; carbonate of potash, 50 grains; water, 40 minims. For use dilute with water to make two ounces in all.

LITERATURE OF THE YEAR.

To record the names of all the books published during 1897 relating to photography and its applications would considerably overtax our space. We, therefore, present only a list of the best books of the year published for English readers :

The Action of Light in Photography, by Captain Abney (\$1.25); *Bromide Paper*, by Dr. E. Just, fourth edition (50 cents); *The Ferrotyper's Guide*, seventeenth edition (75 cents); *Röntgen Rays and Phenomena*, by E. P. Thompson (\$1.50); *A Manual of Photography for the Use of the U. S. Army*, by Lieut. S. Reber; *The Camera and the Pen*, by T. C. Hepworth (50 cents); *A Manual of Photo-engraving*, by H. Jenkins (\$2); *Photographic Amusements*, by W. E. Woodbury, second edition; *Artistic Lighting and At Home Portraiture*, by

James Inglis and F. Dundas Todd (\$1); *Bromide Enlargements*, by J. Pike (50 cents); *First Step in Photography*, by F. D. Todd (25 cents); *Picture Ribbons or Animated Photography*, by C. F. Jenkins (\$5); *The Process Year-book for 1897*, by W. Gamble (\$1); *Magic, Illusions, and Trick Photography*, by A. A. Hopkins (\$3.50); *Carbon Printing*, by E. J. Wall, second edition (\$1); *Platinotype Printing*, by A. Horsley Hinton (\$1); *Second Step in Photography*, by F. D. Todd (50 cents); *Studies from the Leading Studios*, by C. Hetherington (\$3.50); *Handbook of Photography for India*, by G. Ewing; *Sunlight and Shadow*, a series of fourteen papers covering indoor and outdoor photography, by W. I. Lincoln Adams, finely illustrated by prominent amateurs (\$2.50); *The Photographic Reference Book*, by F. Dundas Todd (\$1.50); *Photography as a Hobby*, by M. Surface (50 cents); *Photo-Aquatint, or the Gum Bichromate Process*, by Alfred Maskell and R. Demachy (\$1); *Photography Annual, 1897* (\$1.25).

The production of so many new works, and the steadily increasing demand for the older and fuller manuals, such as *Quarter Century in Photography*, *Cyclopædic Photography*, etc., indicates a greater disposition on the part of photographers to study the theory and practice of their profession, and is most encouraging.

OBITUARY.

The list of photographic workers called to their account since MOSAICS, 1897, was published contains many notable names. Their place and work in photography will be readily recalled by our readers.

Napoleon Sarony, for over a quarter of a century the

ablest exponent of artistic portraiture in America, died at New York, November 8, 1896, while the last volume of MOSAICS was in press.

David Knight Cady, a pioneer dealer in the Western States and a well-known writer for the photographic journals, died at Cincinnati, November 27, 1896.

B. F. Battles, an old-time photographer, died at Akron, Ohio, November 25, 1896.

Robert Newell, one of the foremost workers in commercial and outdoor photography, died after a long and active life in his profession, at Philadelphia, February 2, 1897.

E. C. Dana, a prominent metropolitan photographer, died at New York March 1, 1897.

M. Carey Lea, well-known all over the world for his contributions to the science and literature of photography, died March 15, 1897.

Henry Hunt Snelling, an early American photographic editor, writer, and publisher of Snelling's *Photographic and Fine Art Journal*, died at St. Louis, June 24, 1897.

Alvan G. Clark, famous as an optician and manufacturer of lenses for photography and astronomy, died at Cambridge, Mass., June 9, 1897.

C. D. Mosher, for many years a portrait photographer in the West and identified with photography since daguerreotype days, died at Chicago in July, 1897.

W. H. Harrison, a voluminous writer and expert in photography, died in England, August 10, 1897.

Robert Terras, a young Scotch photographer of unusual promise, died at Markinch, Fifeshire, June 7, 1897.

SECTION II.

ORIGINAL CONTRIBUTIONS.

THE USE AND ABUSE OF THE LENS.

By DR. JOHN NICOL,
Tioga Centre, N. Y.

THE artist who will compare a collection of photographs made during, say, the sixties, or in the early seventies, with a similar collection of the present time, will be struck with the vast superiority, from an artistic or pictorial point of view, of the former over the latter; and this, notwithstanding the fact that at the present more than at any previous time photographers, or at least many of them, are striving hard to make something more than mere photographs. Nor is the cause difficult to find. The optician is to blame.

In the early days the single lens was universally employed in landscape photography, and its focal length was never less than once and a half the length of the longest way of the plate, and much more frequently twice that length, giving an angle on the base line of from thirty-eight degrees to twenty-eight degrees, and always nearer the latter than the former.

The optician, laudably enough, sought to improve his instrument, but unfortunately from the optical rather than the artistic point of view; perfection in his estima-

tion being the most perfect covering with the largest aperture of the largest plate by a lens of the shortest focus. By and by the rectilinear working at $f/8$ and more or less successfully covering a plate the base line of which was as long, and often longer than its focus, became the typical lens; and as, for a reason known only to the optician, the cost rapidly increases with the increase of the focal length, lenses that would just cover a half-plate, whole-plate, 8×10 , etc., became known by those standard sizes, and were and are bought and employed either in ignorance of or ignoring the fact that in a photograph the base line of which is equal to or longer than the focus of the lens with which it was taken the perspective is apparently altogether wrong, the foreground objects absurdly enlarged, the distant objects objectionably diminished, and in nine cases out of ten very much is included in the view that would be better left out.

For several years a part of my work has been the criticising of prints sent to me for that purpose from all over the country, literally from Maine to Oregon, and indeed far beyond, and I am safe to say that at least 90 per cent. of them would, from a pictorial point of view, be worthless from that cause, if otherwise faultless.

The remedy is obvious; never in pictorial photography include an angle greater than thirty-eight degrees, and remember that one of twenty-eight degrees is very much better; in other words, never employ a lens shorter than once and a half the length of the longest way of the plate, and, if possible, secure one that is twice that length.

SOME HINTS ON INTERIOR PHOTOGRAPHY.

BY J. PERKINS, M.A., F.R.A.S.,

Turnworth, England.

IN this short article I intend to give a few practical hints that I hope may lead any of my readers who care to avail themselves of them, to success in photographing interiors.

Size of Negative. It is desirable not to attempt to obtain large negatives in the first instance; 5 by 4, or half-plate, will be found the most convenient sizes. From these contact prints can be produced, or if desired enlargements may be made. The reason I recommend small negatives is that the larger the size of the negative the longer must be the focus of the lens, and, as depth of focus decreases much more rapidly than the focal length of the lens increases, a much smaller stop must be used, and the length of exposure required for a large plate will be many times greater than will be sufficient for a small one. This fact will be more fully realized if I give an example: Suppose, for instance, we find that a 5-inch lens with a stop of $f/11$ gives sufficient depth of focus for a certain interior on a 5 x 4 plate, and that a minute's exposure is required, then if we want to get the same amount of subject included with the same depth of focus on a 10 x 8 plate, we must use a 10-inch lens and a stop of $f/45$, which will necessitate an exposure of sixteen minutes. In this special case the increase in the exposure might not cause any serious inconvenience, but if the interior were so dark that half an hour's exposure were required with the 5-inch lens, eight hours would

be required for the larger negative, which would practically mean that well nigh the whole day would be occupied, during which time the sun would have moved so much that the objects would be very differently lighted at the end of the exposure from what they were at the beginning, and an utterly untrue result produced.

The Lenses. Three lenses will probably be sufficient for interior work if only one sized plate is used. For 5 x 4 plates these should have focal lengths of three and one-half, five, and eight inches respectively, and should be of one of the modern kinds of anastigmatic doublets, such as Zeiss's Sätz-anastigmats, Goerz's Double Anastigmats, Wray's Platystigmats, or Voightlander's Collinears. These all give flat fields and good marginal definition with large stops, and allow the front board of the camera to be considerably raised without the appearance of dark corners at the top of the plate. The fact that the full aperture is large enables one to compose and focus a dark subject on the screen, even if the lens has to be somewhat stopped down for the exposure. If these lenses are too expensive, then wide-angled rectilinears of the same focus may be obtained, but as these generally do not open out to more than $f/16$, difficulty sometimes arises in focussing.

The Camera. This should be provided with a front which can be raised considerably, have square and not taper bellows, a swing back, which will occasionally come in handy when raising the lens to the utmost is not sufficient to get in the roof, and a spirit-level, which is indispensable.

The Tripod. This should have sliding legs, as it is often handy to shorten one or two of the legs when the



Rev. T. Perkins,

Turnworth, Eng.



E. B. Core.

CHILDREN.

New York.

stand has to be placed with one or two of its feet resting on articles of furniture while the other two or one stand on the floor. The feet should be shod with India-rubber or cork to prevent them slipping on polished wood or marble floors.

The Plates. These should be tolerably rapid and always backed or otherwise defended against halation; color-sensitive plates in many instances will be found very convenient.

The Point of View. Interiors differ so much in their character that no definite rules can be given, but it is as well not to have the two sides of the picture exactly symmetrical, the camera should not be planted, for instance, exactly in the centre of the "middle aisle" of a church, nor directed exactly to the corner of a room.

Focussing. When, owing to the darkness of the interior, the images of the objects cannot be well seen on the ground-glass, a white card illuminated by a candle can be placed against some prominent object, and then focussed, and the candle can be moved by an assistant while the photographer's head is under the dark-cloth, so that the latter may see how much is included on the plate.

Exposure. Experience alone can determine this, but an actinometer is useful in measuring the photographic intensity of the light, which often, owing to a faint yellow or greenish tinge in the glass of the windows, hardly perceptible by the eye, is much less than might be imagined. A full but not excessive exposure should be given, for despite all that is said to the contrary, it is quite possible to spoil an interior by over-exposure.

Development. The great object in interior photography is to get negatives full of detail, without excessive contrasts, having neither the high-lights blocked up, nor the deep shadows so thin that all detail is lost in the print. To secure this a full exposure having been given, it is well to commence development with a weak developer; the pyro, alkali, and bromide (if used) should be mixed in the same proportion as for normal out-door work, but each ingredient of the developer should be reduced to a third or even a quarter of its usual amount, the same bulk of water being used. With this weak developer the picture will come up slowly and allow ample time for applying the restrainer by means of a brush to any part that requires keeping back, or for bringing out any part that lags behind by applying to it in the same manner a little accelerator, much diluted. When the detail is fully out, some stronger developer may be used to increase the density, but it must be remembered that not a dense but rather a moderately thin, soft negative will give the best prints of subjects such as those of which I am writing.

Subsequent Work. This differs little from what is usual in exterior work. Local reduction may sometimes be needed; but it requires extreme care to do this without a mishap. Windows often, despite all that is done by application of the restrainer during development, get over-dense, and detail is buried in a thick deposit of silver; this may be removed by a chemical reducer, or by rubbing with a smooth, fine piece of rag put over the finger and then dipped in spirit; of course, after the negative is perfectly dry. This will partially remove the deposit and recover the detail.

Sometimes lights may require strengthening by means of a lead-pencil used upon the film prepared to take the lead by being covered with retouching medium, or by being slightly roughened by rubbing it with the tip of the finger dipped in some powdered resin. Sometimes a little paint applied to the back of the negative may be useful in heightening a light which is not strong enough, and tissue-paper may be used at the back of the negative to cover any shadow that is too transparent; if this is oiled after it has been pasted to the negative, a softer result will be obtained. Other methods of shading portions of the negative may be resorted to when necessary. If the above hints are acted on, and care, and, above all, patience exercised—for hurry either in selection of point of view, exposure, or development is fatal to success—the photographer who devotes himself to interior work should soon be able to turn out satisfactory prints.

MY FIRST CAMERA—A REMINISCENCE.

By J. F. RYDER,
Cleveland, O.

WE made acquaintance fifty years ago. So distinctly do I remember it! I was just out of school; my father gave me the money to buy it. It was my first venture in a business direction for myself. I was very proud of my little camera, and in my mind can see it now, with its rosewood veneer outside; at front and back the ends chamfered to an angle of forty-five degrees; its sliding inside box carried the focussing glass, which was

drawn up and out of the top through double doors, and the plate-holder slid down in its place. These doors were hinged to open, one toward the front and one toward the back. Each had a little knob of turned bone by which to lift it, and there were two little inset knobs of the same material, turned into the top of the box, upon which the knobs of the doors should strike, and the concussion of those bone knobs fifty years ago is remembered to-day as plainly as though I had heard it every day from then until now. And the smell of iodine from the coated plates used in that dear old box lingers with me like a hazy dream! The box was the body, the lens was the soul with an "all-seeing eye" and the gift of carrying the image to the sensitive plate. I entertained a great reverence for my lens.

The companionship between my camera and I was congenial and comfortable; we drifted about the country together, and our experiences were sometimes extremely interesting. I had gone out to win a fortune; my camera was the key to the treasure vaults of the wealthy. We found after a bit that they opened more slowly than we had imagined, but youth is sanguine, and the country was poor. We went to the smaller towns and villages, visited places where a camera had never been seen before. The black glazed muslin which we tacked up, generally in the corner of a room, wherein we coated our plates, carried an air of mystery and impressed many that we were traffickers in a black art. Some were candid enough to accuse us of being in league with the devil. I remember a little village in Cortland County, New York, where I was charged one dollar per week for "gallery" room, sleeping room, and board, payable in daguerreotypes.



J. F. Ryder,

INTERESTED.

Cleveland, O.



White Plains, N. Y.

THE PRIDE OF LIFE.

John Rusch,

It was an unpretentious tavern whose proprietor was rather eccentric, and who insisted that my company was worth the price of "my keep," in proof of which he spent most of his time with me. He called me the "Dogtype man," and made me acquainted with every man, woman, and child in the village who would be worth anything to me in a business way. He gave it out that I was the inventor of the art. He took me to singing school, to a husking-bee, and squirrel shooting. I could only get away from him by promising to come again, which promise has not been fulfilled.

After wandering about for three years we (my first camera and I) struck Ohio, and at Elyria I built a skylight in a business block and settled down to regular work. One morning early I was awakened by a friend, who hurriedly came to my boarding-house and asked if I was insured. Of course, I was not. He added that the block was burned, that the door to my rooms had not even been opened, and so my camera, bone knobs and all, had been reduced to ashes. My first photographic bereavement had come.

THE WORTH OF STATE ASSOCIATIONS.

By GEORGE B. SPERRY.

Toledo, O.

SEVENTEEN years ago in the city of Chicago the Photographers' Association of America was organized, and later was chartered under the laws of the State of Illinois. Until recently its growth has not been espe-

cially noticeable by any increase in the attendance. At no time during these seventeen years have the hard times pressed so heavily upon us as during the last two or three, and yet not even in the prosperous times of the old N. P. A. was there ever such a gathering of photographers as met at Celoron in '96 and again in '97. We are told that the magnificent environment, the zeal and energy of our officers, and the liberality of those who have interested themselves in bringing the convention are the cause of the increased attendance. These are potent factors. Never has this society had such pleasant quarters in which to transact its business. Never has the Association had such a gallery for exhibition purposes. Never has so much been done for the amusement and instruction of those who attend as there. Never before have they been where, without any interruption to the business meetings, they could get so much relaxation and pleasure as on and around the beautiful lake of Chautauqua. These are strong attractions. I have no desire to belittle them. But there is another cause for this interest that has never been alluded to. About nine years ago a few enthusiastic photographers met in the town of Lima, Ohio, and organized a society for their mutual improvement, calling themselves the P. A. of N. W. Ohio. After one or two meetings the interest beyond their own locality had grown so great that at a called meeting, held at Columbus, new by-laws and constitution were adopted, and the present P. A. of O. came into existence. I need not review its history. Its continued prosperity is well known. Other States rapidly followed the example of Ohio, and there are now, I believe, eighteen similar societies. It is these organiza-



Geo. B. Sperry,

OLIVE BRANCHES.

Toledo, O.



St. Louis.

"WHO KILLED COCK ROBIN?"

J. C. Strauss,

tions that have awakened the interest that has made these great gatherings possible. The State association affords a better means for concentrated effort. Members more readily get in touch with one another. It is easier to arouse interest in any proposed reform and to take the necessary action to make it effective. This is evidenced by the action of the Michigan Association, which has raised a fund for the purpose of securing a Sunday closing law, and on broader lines the action of the Ohio photographers in instituting a salon and employing the best talent to be had for the delivery of art lectures.

It has been thought that so many associations could not prosper; that the States would have to give way for the National or the National for the States. We all know that the National is prospering, nor do we hear of any failures among the State societies. The permanency of the interest depends upon the inducements offered. If these be nothing beyond a banquet, a boat ride, or a picnic, the member will lose his interest with his appetite, and will come when he has no other place for an outing. The way to keep his interest is to feed his mind. When you can make a man believe that there is a charm in photography beyond the requirements of food and shelter, he becomes a permanent attendant. It has been suggested that the States meet for two successive years, and all unite the third year for a national meeting, thus giving the National but one meeting in three years. This plan may benefit both; but I think it is questionable. At the Buffalo convention in 1891 it was thought best to have no meeting in 1892, and to meet with a great hurrah in Chicago during Columbian

year. The Chicago meeting had one of the poorest displays the Association had ever had, and but for the energy of a few of the younger members who interested themselves in the election, the organization might have died of inanition. The conditions may be different now, but in an interval of three years much of the interest would be lost. Another point at which the prosperity of the State Association affects the National is in the matter of location. It has been the policy in times past to go each year to a different part of the country, in order to keep up a good local interest, and to make it as truly national as possible. The many conventions have supplied this necessity, and the prosperity of this Association no longer depends upon the fresh interest awakened at each succeeding locality. It needs now a permanent home where it can gradually accumulate the conveniences and comforts of a home. The worth of the State association is not confined to its own territory. The interest it creates is far reaching. To secure a better professional and a better social standing for photography does not depend so much upon the education of the upper strata as it does upon the elevation of the lower. This is the work the State Association is accomplishing.

THE ERYTHROSIN SILVER BATH.

BY MILTON B. PUNNETT,
Jennings, Mo.

IN *Seed's Manual*, page 22, is recommended the following formula for rendering their plates color-sensitive :

Erythrosin Solution (1:1000)	50 parts.
Distilled Water	100 "
Silver Nitrate Solution (1:1000)	50 "
Ammonia (sp. gr. 0.96)	2 "

The results of numerous experiments show that the amounts of silver nitrate and erythrosin can be reduced without a corresponding loss of color-sensitiveness; but if the amount of ammonia is reduced the reduction in color-sensitiveness is immediately noticeable.

Reducing the amount of erythrosin will cause, under some circumstances, a slight loss in the sharpness of the image, which is explained by the fact that the red color of the dye tends to prevent halation. The following may be taken as a good average formula:

Erythrosin Solution (1:1000)	20 parts.
Distilled Water	100 "
Silver Nitrate Solution (1:1000)	20 "
Stronger Water Ammonia	2 "

When speed is not a desideratum the best orthochromatic effect can be obtained by sensitizing Seed's Process Plate in this way.

JUDICIOUS DEVELOPMENT.

BY D. BACHRACH,
Baltimore, Md.

THE most radical departure in the practice of photography at the present time, as compared to the period of collodion wet plates, is the control of results by scientific development. In the one case, with the use of the acid-iron developer, the operation of development was purely mechanical. Given a sufficient exposure (a considerable excess was necessary to actually give inferior

results from that cause), and the reduction of the silver was simply the registration of the action of light, and very little modification of result from this cause was possible.

With the advent of the gelatine dry plates and the rise of organic alkaline developers, an entire change took place in the control of the results, and it is one that very many as yet fail to comprehend, certainly not many take advantage of it. I can more fully illustrate what I wish to convey by giving a case of several hypothetical exposures of a subject: a portrait of a young lady in drapery ranging from pure white to dark velvet in the same costume, made at the same time of day, same light, and same time of exposure. The light is supposed to be one of forty-five degrees, commencing at a distance of seven feet from the floor, of the average size, curtained and screened as usual. Plates, the Cramer Crown or Seed's Gilt Edge; lens, Voigtlander's Euryscope No. 3, of the series whose working aperture is about $f/4.3$; time, two seconds for cabinet portrait. Developer, pyro and soda, of which the latter stock-solution consists of four ounces of the alkali salt to sixteen ounces of water, and the pyro stock-solution consists of one ounce pyrogalllic acid (Schering's); six ounces crystallized sulphite of soda and sixteen ounces of water.

Plate No. 1 developed with the following solution: solution of sulphite of soda, one-half ounce; pyro solution, one-half ounce; water, five ounces; and five or six drops of a 10 per cent solution of bromide of ammonium. Temperature of all solutions between 60° and 70° F. This latter element of temperature is important, and, to obtain uniform results, should be

the same in summer and winter. This plate will come up rapidly and with full strength, and at the time when all the details of the dark portions are fully out will have strength enough for the glossy aristo print-out papers. Carried somewhat further it will be suitable for albumen or matt-surface printing. The resulting negative will have good contrasts in either case, not harsh, yet the more delicate details in the white part of the drapery, or the finer half-tones of the flesh will not appear in the prints (though indicated in the negative) without considerable over-printing. In fact, the negative is of the kind desired by the majority of workers, as it is easy to retouch, not too much half-tone to compel slow and careful retouching, and giving what are called *smooth* brilliant prints in either case.

Plate No. 2: Same exposure, light, etc.; developer mixed in same proportions as to stock-solutions, but diluted with ten ounces of water instead of 5. (It is to be understood, of course, that all these exposures are full enough to be a little over the time really required, yet not over-exposed in the sense usually meant, and, by the way, that is the only kind of exposures that should be used, as an undertimed negative cannot be made to yield first-class results, no matter how doctored.)

A decided difference will be noticed in this second plate. It will come up much slower, *yet the extreme dark velvet drapery and the white portions will not come up so far apart.* There will be noticed, also, a greater range of tone. Instead of a few simple half-tones, lights, and shadows, there will be several intermediate tones, and when the proper point is reached for the print-out papers, a negative giving far more modelling and richer

in effect in every way. These qualities will not be lost in carrying the negative far enough in density to make good prints on albumen or matt-surface paper.

Plate No. 3, same exposure, light, etc., is developed with the following modification in the solution, viz., the alkaline reducer is cut down one-half, while all the rest, including the water, are left the same. The development will now be much slower, the black drapery will stay back longer, and the deep shadows in the white drapery will also be restrained, but finally everything will come up in every detail. But here we have a plate with the contrasts between the black and pure white much more decided than either of the previous plates, with every detail indicated, rather too strong for glossy papers, or even albumen, but well adapted for platinotype or carbon printing, in fact the best negative for the purpose, if the development has been continued long enough.

Now let us suppose we have a copy to make, say of a ferrotype, and we have not the slower and harder plates at hand. Can good results be produced? Yes; results hardly to be distinguished from the plates adapted to that kind of work, if the exposure has been right. Use one-half ounce of the alkaline solution, one ounce of the solution of pyrogallie acid, with the proper amount of the bromide solution to about five or six ounces of water, and the plate will rapidly receive the proper density and contrast for such subjects. Using the same developer as for life exposures in this case would give a weak, flat mudwash. It will be seen from these examples, which are from practical experience, that development in modern photography is almost an art-science by

itself, and can show the influence of the individuality behind it almost as much as the higher functions of posing and lighting. It must be remembered that a decrease of ten degrees in the temperature of the developer, by means of ice or otherwise, is equivalent to the addition of the amount of bromide herewith recommended, while an increase in temperature shows an equally decided contrary effect. I might enlarge much more on the various modifications that could be utilized for various results, but these are sufficient to illustrate the subject.

A PLEA FOR INDIVIDUALITY.

BY H. W. MINNS,
Akron, O.

WHAT shall I say that has not been said a hundred times before, and in better language than I can put it? How can I build my light-house without pulling down the one that lights the way to another's harbor?

Surely, none of the schemes that are time-worn and time-dishonored will do it. Everybody wants a corner on something. Only yesterday I heard a tobacconist say, "If I handle this brand of cigars I must have the exclusive sale in this town." A few days ago a shoe dealer remarked, "They are getting photography down fine—just like the grocery business." (Complimentary to us artists—isn't it?) Who is to blame? If we could conduct our business on the grocery plan, we ought to accept the rating.

But what shall I offer that cannot be obtained at any

photographic grocery? The verdict of all thoughtful people is against untruth. Have we been making work that is true or that which is false? Is the "new school" of photography true or false?

You meet a friend on the street, talk with him, and a few minutes later, if asked what kind of clothing he wore, you cannot tell. If a photograph had been made while you conversed, *everything* would have been recorded by the lens, yet *your eye* saw the *portrait*. Did the lens see too much and *lose* the *portrait*?

Is this the reason why so many of our patrons have said of proofs, "It's a good picture, but I don't think it looks like me."

Can we not eliminate as subordinate all that is unnecessary, and picture the face as the eye of affection sees it, catching a glimpse of the mind within?

"As when a painter poring on a face
Sees the man behind it, and so paints him
That his soul lives for his children
Ever at its best and fullest."

This is the best compliment I ever received: "How did you make such a beautiful picture of Miss S.?—and it looks just like her."

Have the photographic conventions offered much encouragement to originality or artistic ability? Does not the time-honored "Posing, Lighting, and Chemical Effect" seem narrow and meaningless? Nay, more, even absurd?

The judge at the bird or poultry show has the American *Standard of Excellence*, in which every breed and variety is described to guide his judgment. The judge on swine has the scale of points with a description as



H. W. Minns, AFTER AN OLD MASTER.

Akron, O.



W. H. Partridge,

THE ALLIGATOR EXPRESS.

Boston, Mass.

given in the registers of the respective breeds. Horses, cattle, sheep, and dogs are all classified, and perfect animals described. Where is the precious volume for photographic artists? I am glad there is none, nor ever can be.

Posing is a matter of individuality; lighting is from opening dawn to midnight blackness, with only one lone star or low-burned taper glimmering through; chemical effect is that which tells the story, and a thought conveyed or an idea projected is worth all the meaningless simpers that were ever recorded on a plate.

We must catch something of the inspiration and ambition that fired the brain of Parrhasius when he declared:

“And I could paint the bow
Upon the bended heavens, around me play
Colors of such divinity to-day.”

Yet be like him, unsatisfied, for still he cries: “Gods! if I could but paint a dying groan!”

We need a National Salon of Photographic Art, where the true and the false may part company.

“PAINTER-LIKE PICTURES.” HOW TO MAKE THEM.

By C. ASHLEIGH SNOW,
Toronto, Canada,

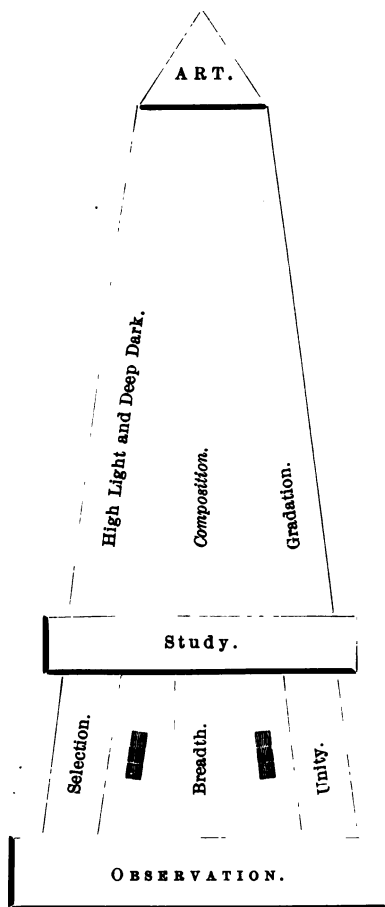
THAT the artistic improvement of photography is now the aim of hundreds of earnest workers is made evident by the increasing numbers of fine specimens

received whenever and wherever competitions are announced. Taking it for granted that the reader aspires to enter one or more of these competitions, we presuppose him familiar with his apparatus; that he is no longer disconcerted when he sees the view inverted upon the ground-glass; can expose and develop with the certainty of a good technical result; can print and tone acceptably. Will he rest content, or will he press on, aiming for that artistic quality which will enable his prints to rank as pictures? If he be of thoughtful turn of mind, he will now feel that he has but made a good beginning. The old proverb has it: "He who begins well has half achieved success."

Supposing then, that the student does not feel that he is "past master" because of success in the preliminaries, but desires to develop his artistic faculties to the utmost, this little manual offers to assist him in his laudable endeavor. For many years MOSAICS has taught the photographic worker that the only standard that he can safely follow is the banner emblazoned "higher art," with the promise beneath in golden letters "*In hoc signo vinces*" (under this standard thou shalt conquer).

The prize-winner of these latter days is not he who produces photographs made by means of a lens which "shows a bird's beak at twenty miles." Little by little a higher art feeling has been cultivated, and now, the indications are that what were known as "photographs" have had their day, and "pictures" only will be called for hereafter.

Permit a graphic representation of the progress of the art aspirant as he fares on his way toward better things.



Upon the base of Observation of nature, and the masterly creations of others, we place the buttresses of Selection, Breadth, and Unity, much neglected by photographic workers in the past. The shaft or column of

"composition" with necessary adjuncts is supported by these, while "Art" is the capstone of the monument.

■ We take up these heads in order. Artists cultivate the faculty of observation to the highest degree. Only by its aid can memory-sketches be made. He who would imitate the artist must likewise train this faculty. It is told that Michael Angelo, when bent with age, was found by a friend sketching among the ruins of an ancient building. The friend asked "What he, who had such a reputation as an artist, could find in his old age to add to it." He replied, "I am still learning."

Selection of a proper subject is a matter of greatest importance. Do not rest satisfied with one point of view; perhaps from another standpoint it may be far more desirable to make an exposure. Count the time *well* spent in "viewing," always aiming to give prominence to the principal object that at *first sight* attracted you; when you finally decide to focus support the leading feature by subordinating the character of the whole picture to it.

Swing the camera from left to right, watching the objects that are introduced upon the ground-glass. Variety is essential, yet all such objects must be held accessory to the principal one. By following this rule you succeed in placing things in "keeping," to quote an art-phrase.

The foreground must sparkle and "send back" the rest of the picture in force of contrast. Now, what has impressed you and induced you to take this picture?

Perhaps its repose or its picturesque character. You know, of course, the distinction between the beautiful and the picturesque. Let us hope that you are not

attracted by the extent of the view. The camera rarely renders satisfactory negatives representing miles of extended prospect. Let each exposure be made with the earnest intention of impressing upon the spectator some one particular quality by which *you* were attracted. Breadth: attention to this quality is rarely exhibited in photographic work. Why, it is hard to say, yet the law of sacrifice is imperative, and must be obeyed, or your productions can never be ranked as pictorial.

"Choice of effect" goes hand-in-hand with breadth. The rule with artists is to make the "white precious" in the picture.

The sky is your source of light, yet clouds must not obtrude. As you value your peace of mind do not print in a purchased set of clouds. Expose a quick plate, do not push development too far, and bind the two together, if you prize the picture; it is the only true way. Clouds must not obtrude even when high-light centres here. They are rarely white, as you may readily discern by holding up a clean (?) white handkerchief. A photographer's handkerchief, between developer and dusting plates and holders, is cousin to the printer's "office towel," which is frequently a badge of mourning, being in black.

"Effect" is largely a matter of season of year, the time of day chosen, etc. Wait until the shadows are long, for shadows are the "bone and sinew" of truly pictorial work.

In focussing, once the outline is secure, partly close your eyes, and try to seize all that is poetical in the scene, refraining from giving prominence to the commonplace. Now comes into use another art term, the

“lose and find of line.” Objects are not cut out in nature; only portions of the scene are prominently defined. The presence of mystery is necessary in shadows and their vicinity. A melting quality pervades all high-class work. If nature seems not in the mood to enable you to utilize these hints, wait patiently, a passing cloud may give you the effect you seek.

One who communes much with nature will affirm that the moments of her supreme loveliness are fleeting. She is constantly showing us beautiful things; but such have not been seen before, and may not be repeated. It is this fleeting glimpse of perfect beauty that we are now afield to secure, and such only that we care to record. Great pictures exhibit phases of nature for which you may be sure that the artist was obliged to seek patiently. Such are manifested in some rarely peculiar, most beautiful way, and such are worth the seeking. Time, season, and effects produce, by nature's working, telling pictures in unexpected places. The attention must be actively awake, for it is only by the intelligent appreciation of the educated eye and well-trained hand that their transient excellence can be secured. See to it that proper values exist upon the ground-glass, and aim to secure rich tonal quality. A wiry, tight appearance is to be avoided. Again, extremely detailed views are seldom impressive.

Unity must be your aim. Spottiness is a grave fault. Do not uncap when the view seems much “cut up.” You are making a negative to preserve for years, and you wish to exhibit it as a success; you can afford to wait.

In regard to these effects, one may ask how much of

the picture should be dark and how much light? It is a matter of artistic perception and good judgment. If the subject be quite an extended view, then light must predominate. The deep dark will be sparingly used. If a contracted mountain view, a defile, or a tarn, an effect of gloom will best accord with the sentiment of such a scene, but still systematic gradation must be maintained. Rule: High-light in the sky; deep dark on and among cliffs and bowlders. Half-tints blend and unite the whole. The sparkle of the waterfall or reflected clouds in water give repetition and contrast. Where space and atmosphere form the chief attraction, half-tint must be in excess, as this alone gives due importance to light and shade extremes. Gradation and contrast give the most telling artistic effect. Solemn breadth of shade ever appeals to those of artistic sympathy.

Figures in action looking into space must have plenty in front of them. A picture may be a landscape with subsidiary figures, or a figure pose, and landscape merely as a background. Never allow two competing interests in one picture.

If a figure-picture, allow them to take deep dark, the landscape the half-tint, and sky the high-light. A herd of deer seen against a misty forest background gives a telling effect. Forms of cattle in half-tint reflected in water, under dark foliage shadows, give artistic pictures. For the proper education of the eye nothing equals a course of charcoal drawing. Its artistic value consists in its poetic softness and tonal gradation, and its capacity to express tenderness and proper values. It is of all the graphic arts the one that soonest repays labor; of all,

the one which soonest permits the aspirant to express his knowledge of natural truth. Thus much for the making of a truly artistic negative. For a picture, if for reproduction, print upon the old-time albumen paper, sun the back to secure delicate gradation, and print it until blocked up in the shadows. It will tone out unless greatly overdone. Tone to rich purple brown. Secure breadth while printing with a reading-glass focussed so as to direct the light to deep darks, keep a bit of wax paper over the sky, meanwhile moving it to and fro. If the negative is not dense enough to print in an hour or an hour and a half, intensify by uranium method, often given in the magazines. It is effectual and is wholly under control.

If the picture proves a choice one, put the negative in the frame with a plate and make a positive. It will often produce a superior negative to the original when in contact with rich, slow plate. Cresco-flyma will, it is said, enlarge the film to twice the original size, but I have never tried it, as I prefer to make bromide enlargements of all my negatives.

In making pictures the aim should be to guide the mind of the spectator to those objects in nature most worthy of study; to inform him of those thoughts and feelings with which they were regarded by the artist. Working thus, new fields of exertion, new subjects for contemplation, open to the mind daily. The only cause for regret will be the shortness of life, for we think with Michael Angelo, that "art is long."

RECAPITULATION.

For composition: "Aim to produce a broad impression of the scene before you, and let you *first impression* be your guide" (Procet, famous English water-colorist).

Lines. There must be "a good run of lines," leading up to the principal object.

Masses. These should be so combined as to support the principal object.

Balance. This must have attention, yet formality and symmetry must be avoided. Do not place a tall pine in the centre of the plate with exactly diverging masses of mountains, clouds, or water radiating from it.

Contrast. Deep, dark and high-light should meet, but sky is always graduated in two directions at least—from above darker downward, and from side to side; the corner opposite the sun darkest. Print in such a manner that the luminous delicate effect of sky contrasts with the darkness and roughness of the earth, foliage, buildings, etc. Shadows cast by clouds are precious. Excess of contrast is a mistake. It causes a "hard" picture. Keep edges soft.

Repetition excites agreeable emotion, yet if the subject abounds in angles and straight lines, judiciously introduce curved forms and lines, as crooked, gnarled tree-trunks, moss-grown, rounded boulders, etc. Cumulous clouds contrast well with cliffs or buildings. For a sombre, gloomy view, deal broadly for right effect. Do not break up too much.

Variety creates interest. For these negatives of boats, carts, shipping, etc., may be printed in with great effect in diversifying and completing the picture.

Gradation leads the eye to the principal object. It should be so well managed as to cause that object to "stand out" and catch the eye before all others.

Values. Each object keeps its proper place in interest and tonal quality. In a sunset effect, with three planes in the picture, a green foreground, a lake in mid-distance, and sky at back, the sun has the first value as the unit of light, the clouds next, the water next, and the foreground last of all as darkest of all. Shadow masses have a value as they *recede* from the light. Values give atmospheric effect.

One may ask upon what system does the painter work? The whole world of sight is made up of three possible systems :

First. That which attends principally to the configuration and relation of objects in nature as indicated by their circumscribing lines—this is known as the "*system of line.*"

Second. That which attends chiefly to their configuration and relations as indicated by the incidence and distribution of their lights and shadows, known as the science of *chiaro-oscuro*—the distribution of light and shade.

Third. That which attends chiefly not to the configuration, but to the distribution, qualities, and relations of color upon their surface—known as the *system of color*. Line, light, and shade color ; these, then, make up the world of sight.

The purpose of this paper is to call more careful attention to the second or nature system. Line is, in truth a human invention, the divisions between objects represented by an outline or dark marking being in nature

only indicated by melting edges where one color ends and another begins. When the painter represents natural objects he *suggests* them by the juxtaposition of light and dark or of local colors. Of the great masters in the art of painting, Titian was famous for his color, while Leonardo was the master of light and shade.

Let the photographic worker ponder well upon the fact that the value of a pictorial work is by no means necessarily in proportion to its completeness or mass of detail. Many pictures in our galleries of art exhibit all the resources of line, color, and shade used, perhaps, to the uttermost of the artist's powers, yet are worthless in comparison with the lightly laid shadows or tints of another artist who could see nature poetically. The fine art of painting addresses not merely the eye but the *imagination*. Unless the painter knows how to choose and combine the elements of his painted work, so that it shall contain in every part suggestions and delights over and above the mere imitation, it will fall short in that which is the essential charm of truly *fine* art.

Painters who execute masterly work leave the eye to infer the solidity, the recession and projection, the nearness and remoteness of objects by the same perspective signs by which it infers those facts in nature, namely, the incidence and distribution of their lights and shadows, the strength or faintness of their tones of color. Hence the delights of this art. Near and far is all the same to it, and whatever the vision may grasp can come into the field of the picture; trees, as well as personages, and clouds as well as trees, and on earth the suntinged mountain snows as well as the violet foreground;

far-off multitudes of people as well as groups near the eye. What any man has seen or can *imagine* himself as seeing, that he can record by the art of the painter, subject only to one great limitation—the range of brightness that it is possible to attain with pigments compared with natural color illuminated by the light of nature.

We may define the word “art,” then, forming the capstone of our monument, leaving room for every accepted usage of the word, as every regulated operation or dexterity by which organized beings pursue ends, the outcome of which they know beforehand, together with the rules and results of every such operation or dexterity.

When the genius, like a Corot or a Turner, takes his brush he passes on the essential parts of his art, far beyond the reach of rules, and acts by what we call inspiration—that is, by the spontaneous working together of infinitely complex and highly developed sensibilities in his constitution. Reader, farther on lie other fields to conquer.

CARBON PRINTING.

By ERNEST HECKROTH,
Philadelphia.

THE public are beginning to realize the merits of carbon prints, so much so as to want them without the usual necessary persuasion. The general excellence of the carbon print appeals to the artistic taste, and when prices on other photographic work will be run down far below normal, carbon will prove to be the photographer's



Geo. E. Tingley,

A PORTRAIT.

Mystic, Conn.

Engraved by the Gill Engraving Co., New York.



Knafl Bros.,

"LAWD CHILE, YO GWINE TO MARRY RICH!"

Knoxville, Tenn.

salvation. But while carbon work is always more or less pleasing to see, little is known to the casual observer of the "johnnying" sometimes necessary to get the best results when printing under not altogether favorable circumstances. I aim to show how some of this "johnnying" could be done away with under slightly different conditions, conditions which I believe the manufacturers of carbon tissue alone have the power to grant (unless we choose to make our own tissue, which is altogether impracticable).

Now the carbon printer must accept one grade of tissue for all grades of negatives, and there are instances when a negative will give better results with silver printing than with carbon (and this need not be); particularly is this the case where the negative is very hard, has strong lights and heavy shadows, in which case the high-lights wash away, leaving the print patchy. At other times the delicate detail in white drapery is washed away and entirely lost. The usual tricks in photographic printing, such as bluing, masking, etc., will serve to modify this fault to some extent; flashing the print will also do much good in some cases; but while these wrinkles all help in their way, they are not always satisfactory. The best way of all to overcome this difficulty is one in which the manufacturers of the tissue should lend a very willing hand.

Those of you who have had some experience in carbon printing have no doubt noticed the relief in the print while still wet. Now, suppose you had a sheet of paper coated with gelatine emulsion, sensitized with bichromate, exposed under a negative transferred and developed in the usual way—perhaps you can understand

better if I say a piece of ordinary tissue without *any* coloring matter—the unexposed parts would dissolve and wash away, the relief would be there the same as in carbon prints, but there would be no high-lights, no shadows, no blending from high-lights to deep shadows ; in fact, no picture at all. Now, if a very little coloring matter had been added, a very weak print would be the result. The more coloring matter added the stronger would be the print, until it might be carried to the other extreme, in which case a very hard print would be the result—a print with washed out high-lights and no half-tones.

Now, as the manufacturers of the tissue and the carbon printers are working toward practically the same end, striving to prove the supremacy of carbon prints over all others, and as there is good reason to believe the demand for carbon work is always becoming greater, I think it no unreasonable suggestion—suggestion only, mind you—to manufacture a number of different grades of tissue ; say, for instance, one with the usual amount of coloring pigment, for use with good printing negatives, another with a little more than the usual amount, for use with weak negatives ; and still another with less than the usual amount, for use with hard printing negatives, and which would do away with the patchiness above spoken of. In this way the carbon printer could always get positively the best results from any reasonably fair negative.

I do not mean to complain of the quality of the tissue now in the market ; far from it. I believe it to be as near perfection as any *one grade* can be. Speaking of the two firms most prominent in the manufacture and sale

of carbon tissue—the Autotype Company and the Elliott Company—there must be some competition between them, and perhaps no small amount of honest rivalry, and there certainly would be a large and elegant plume in the cap of the firm who would institute in their manufacture, this great help.

A word to the printer and I have done. If you are a beginner in this particular branch, then I would say, throw away, for the time being, all your knowledge of other printing methods; forget, if you can, that there are such things as silver, gold and hypo baths. The thought of them will only serve to confuse you. Bring your mind down to the fact that in an exposed piece of tissue you have nothing but a gelatine film into which has been incorporated a quantity of coloring matter; and its support, paper, glass, porcelain, or whatever you choose to make it.

Too much care cannot be taken in the selection of a proper drying-room. I believe that nine-tenths of the after-success (or failure) depend on the proper drying (after sensitizing) of the tissue. Choosing between two rooms, one with a temperature of 70° F. dry, free from bad odor, good current of air, and the other room with a temperature of 50° or 60° F., damp, and with bad odors, I would choose the former. Do not think from this that a warm room is most desirable; not at all, but of two evils choose the least.

A COUNTRY PHOTOGRAPHER'S ADVICE.

BY D. E. ROWELL,
Lancaster, N. H.

THE editor asks for something "of practical interest, useful, and short." So here goes.

Buy at once, if you have not done so, a copy of *Artistic Lighting*, by James Inglis; read it, and re-read it, until you have thoroughly mastered the principles laid down therein; then go and work out these principles under your own light. When you have done this, double your prices. This is thoroughly practical, for it has been done by a country photographer way up in the northeast corner, and surely it can more easily be done in larger places, where there are more people who appreciate artistic efforts.

[We thoroughly indorse the soundness of Mr. Rowell's advice.—ED. MOSAICS.]

PERMANENCY OF COMMON PRINTS THE
GREATEST PRESENT NEED.

BY W. H. SHERMAN,
Milwaukee, Wis.

THERE never was a time when the fading of photographs was so generally and so bitterly complained of as during the last few years. At the same time the business is demoralized to an extent never before known—a remarkable coincidence.



Frank E. Musser,

THE COQUETTE.

Harrisburg, Pa.

Engraved by The Sanders Engraving Co., St. Louis.



H. Randall,

New Haven.

"Like as the waves make toward the pebbled shore,
So do our minutes hasten to their end."

SHAKESPEARE.

Many will recall the time when the great effort was made to introduce carbon printing as a substitute for silver. The promoters of the enterprise, armed with patents, urged upon photographers the importance of securing the right to use the process before it would be monopolized by a few, and the universal demand for permanent prints, which was sure to come, should compel every laggard to pay dearly for what he might then acquire on easy terms.

Looking at that crusade in the light of the disrepute into which silver printing has fallen, it might be said with feeling, that a golden opportunity was lost. I must confess to have done my share in contributing to its failure, feeling sure that the process had not yet been discovered that was to supplant the one in vogue, although I was perfectly aware that the time had come for a decisive trial of strength between the rival processes. My advice to many who asked for it, was in accordance with my convictions. I believed then, and believe now, that silver prints rightly made, are as permanent under all ordinary conditions as carbon prints.

This opinion has been confirmed by facts. There are many prints, as is well known, that have been exposed to light and air from twenty-five to thirty-five years, in an excellent state of preservation. Many prints made during the war are in faultless condition.

Consequently, I hold inflexibly to the position that the prevailing trouble with the common photographs of the present day is due to something wrong in the methods by which they are produced. That this trouble, far from being imaginary, is in an acute and critical state, is evident from the fact that customers will now pay five

times as much for *reversed* carbons, as *apparently* equally good silver prints can be had for; whereas, when the fight was formerly on between the two, and first-class *non-reversed* carbons were furnished at about 25 per cent. higher price than the others, they were driven from the field by the competition of silver prints.

Just as sure as like causes are followed by like effects, just so surely will permanent prints result from the same methods which produced them a third of a century ago.

What were those methods? The answer to this question belongs to the classic age. How the prints were made which have survived is an old, oft-told story, which will not be repeated in this place. It comes down from the time before the sin of negative effacement, commonly called "retouching," had come into the world, and the angel Veritas with flaming sword had driven Photography from the garden of Art, never to return until the day of judgment.

I am going to send as a curiosity for the editor's inspection, one of those old relics, in the shape of a bust of Bayard Taylor, traveller and poet. The negative was made, I think, in the winter of 1864-65, and the print probably about the same time.

It is a study of the nude—all above the shoulders is—such a bare face of man or woman is now seldom seen, except in life!—antedates the fall and the carbon manual. The old matt which is sent with it and the mount show that both have experienced the vicissitudes of time and climate, of wetness and dryness. A curious circumstance is that the image has faded where it was *excluded* from the light under contact of the matt, and

calls for some experiments to ascertain the reason of the anomaly.

The greatest need in photography is for a simple, easily mastered, reliable process for producing permanent prints at reasonable prices. I submit that it is proved that such a process exists, has long existed, and that it is manifestly the duty, as it is for the interest, of photographers to adopt it or some other equally reliable into general use.

The process of making permanent albumen prints has passed the experimental stage and has been worked out in every step from start to finish. How to do and how not to do to obtain the greatest variety of effects of any known printing-out process are thoroughly understood or readily learned. The prints will stand thorough toning in gold or gold and platinum. Both my old friend, the late Alexander Hesler, and myself used the latter combination long ago. They will stand thorough fixing; and last, but by no means least, will stand washing, without injury (a week, if need be) until the last trace of hypo is out of them.

What any other process may have to offset these advantages I do not pretend to know or say. It is immaterial by what route the desired goal is reached, but photographers may be sure that it will pay them to find and use some method that will insure the permanency of their work. Until it is won by worth, prosperity will never come to stay.

A TICKLISH EXPERIENCE ABROAD.

BY WILLIAM BELL,
Philadelphia.

IN 1892 Mr. George Spiel and myself were sent abroad to photograph certain paintings which various European countries had consented to send for exhibition at the World's Fair of 1893. Our purpose was to obtain prints from which half-tone engravings could be made for the illustration of the catalogue of the exhibition, and the catalogue was to be ready for the opening of the exhibition. The work necessitated photographing the paintings wherever they were located, and led us into almost every capital in Europe. The negatives were printed from on ready prepared albumen paper, which we carried with us, toned and fixed by local photographers wherever we happened to be, and the finished unmounted prints shipped to the United States as made.

September 19-27, 1892, found us at St. Petersburg, Russia, the loan collection of the country being massed in the Royal Art Gallery. Our object was to get 10 x 12 negatives of the paintings. We had with us some isochromatic plates (Edwards's), eikonogen-hydroquinone developer, and other requisites. Count Tolstoi gave us the use of a room and had it made perfectly light-proof for our convenience. To be sure, it was inconvenient to wash our six dozen 10 x 12 negatives in the stationary washstand of the room, but we managed it, and commenced to make our prints. Judge of our surprise on finding that the plates refused to print in the

shadows! On examining the negatives we found the shadows to be filled with a dense yellow or orange fog, which proved absolutely impervious to light. This had not been noticed during their manipulation in the dark-room. Here was a predicament! All our work was lost, and no isochromatic plates to be had in St. Petersburg!

Racking my brain for a remedy, from past experience I remembered having once reduced negatives which were too dense and of an orange tinge. But the St. Petersburg negatives were all right as to general density. I determined to experiment, and made up a weak solution of prussiate of potassium and hyposulphite of soda, the formula of which I cannot now recall with exactitude. Proceeding cautiously with this, I found that it removed the yellow fog from the shadows of the plates without reducing the general density. "Eureka!" we exclaimed. The cloud was lifted, and we saved our negatives.

The cause of the fog was not far to seek: old, insensitive isochromatic plates. We had previously remarked the unusual length of exposure they required—fifteen to twenty minutes under favorable conditions, instead of the usual four or five.

This was the only difficulty experienced in all our work abroad, and it would seem to prove that isochromatic plates *do* deteriorate and become insensitive with age. How they may be utilized when nothing else is obtainable is seen above. Give a generous exposure, and clear the fog away with the solution mentioned.

(Copyrighted, 1897.)

**A WORD ABOUT IDEALS IN PICTURE-
MAKING AND THE VALUE
OF ART STUDY.**

BY W. B. SWIFT,
Wellesley Hills, Mass.

WHO does not know how valuable ideals in picture-making are? The imagined ideal of what a picture might become, although never realized, is an incentive that brings the picture to a higher plane than is possible otherwise. If ideals are held uppermost in the mind they expand as time goes on and present the unreachd possibilities of our efforts.

The artist must not be hasty to compare his pictures with those of others. By comparison we often fall. By comparison we are often led to be satisfied with imperfect work, and it mars our ideals. We should compare our productions with our ideals until they grow as broad and high as they will and our productions follow as far as they can. As in life, so here we should have the habit of forming, expanding and endeavoring to realize ideals. In the effort to reach them in photography we must remember it takes time and faithful application. Reading about art will not make artists. One has to go into the field and make pictures. Production is the test. He must do the work. No one can do it for him. No one can learn for another. Each must, as the sculptor, meet the rock. Yet perfection in art is possible to all, and he who has legitimate ideals and follows them will surely reach the goal to which



Dozer & McClain,

— IN MAY-TIME.

Bucyrus, O.

Engraved by J. Manz & Co., 195-207 Canal St., Chicago.



G. W. Varney,

A RABBI

Chicago.

they point. The amateur has to work a long time before he can produce even one real picture. At the beginning he can neither see nor appreciate what is necessary, much less make a landscape fulfil the laws of art.

The great fascination comes when all this exertion and ignorance are passed, and the artist sees the law that rules at every move. The beginner knows not where to look, dreams not of the many things on which the picture depends; but when he has had experience in the study of art he hardly knows that he looks at all.

The study of art is educational in the highest sense. Let us look at the value of it. Few, of course, can take it up in all its applications. Some know it as it appears in painting, others as in architecture. Few have that rare opportunity of studying the dramatic art of Shakespeare at the feet of a great and noble actor; yet who cannot take it up in some less extended application. The study of art is valuable as an introduction to a deeper study of nature. This is the grand study! How much it increases the observing powers! The theme of nature has occupied the greatest minds of the world, thereby developing their wonderful powers of observation.

Few realize the unseen worlds that lie immediately about them. Our organs of sense are all limited in their power to get impressions of external things. The world below and above their range is as wonderful as that within it. There are sounds too low as well as too high for the ear to catch. The ornithologist lives in a world of sound that others know not of. He hears birds' notes far and near that fail to awaken an uncultivated ear. The arrow-hunter walks the ploughed fields and picks up

arrow-heads unseen at our very feet. Developed observation opens these worlds. The cultivated observation alone penetrates the depths. The reason people do not believe only half they hear and half they see is because they only half hear and half see. The average observer only skims the surface of things, and, like the cat as she crosses the muddy street, touches matters as lightly as possible. The great go deeply into all things. Yet what they have attained is only an ideal for others. If we judge humanity properly all may attain what the highest have. Humanity should be judged as we judge other things—at its highest. Humanity's best is the possibility of all. All know what a valuable thing an acute observation is, and the study of art with a camera, and even a few art principles, is the best thing to develop it of which I know. It directs our minds to see many facts unnoticed before. The kindergarten does this for the young, and its training shows the value of observation by the exceptionally rapid progress the children make when they pass to the higher grades.

Another advantage of the study of art is the development of the artistic eye. Beecher says: "Education is the knowledge of how to use the whole of one's self. Men are often like knives with many blades, only one of which is sharp and ready for use. Many men use but one or two faculties out of a score with which they are endowed!" The study of art, and especially the application of its principles, keeps sharp and bright and ready for use many faculties that otherwise remain rusty. The artistic eye sees beauty everywhere, even in the commonplace. It seeks and finds the beautiful as if it were an added sense that reports beauty to the

mind. Perhaps it is. At least it presents an ideal of the actual. By being constantly used in composing pictures from rough landscapes, and presenting their possible perfection to the mind, it forms the habit of transforming the prosiness of nature into beauty of form and relation, so that the artist feels he lives in a higher world of beauty. Another advantage is the development of intuition. Intuition is the faculty that perceives God in nature. It is also the voice of God in our souls. We must realize that within is a personality more real than the form that holds it. Then by intuition we see the personality dominant in the forms of nature. We do this by looking at the immaterial side of objects and seeking to know their relation to the personality behind them. Then this personality speaks within us. It is something higher than the judgment. This can be deceived, but intuition never. Intuition grasps the subtlest relations while the judgment dwells on things. The application of this to our subject is that a study of art, by directing the mind to view individualities in the light of the purpose that lies behind them, awakens and develops the faculty of intuition.

Art thus encourages in us the life of the higher nature. Art is a kindergarten for the soul. At its dawn comes the surprising realization that it has turned a world upside down, and we are bid to live beyond the husk of life.

We thus see how extensive is the value of art study.

THE CLEARING OF GELATINE PLATES.

BY CHAPMAN JONES.

London, England.

THE word "clearing," like many others in connection with photography, is often loosely employed. It may mean the getting rid of fog due to a too prolonged development or to the effect of light that has accidentally affected the plate. For such purposes a vigorous reducer, such as ferricyanide and hypo, should be applied for a short time, and the plate quickly washed.

But "clearing" more generally refers to the getting rid of stains due to development. Such stains are, broadly speaking, of two kinds: (1) The metallic-looking deposit that appears especially on old or deteriorated plates, especially when they are developed with ammoniacal developers. These stains are on the surface of the film, and may be rubbed off by a soft cloth drawn over the finger end or made into a pad, or by a pad of cotton-wool. The plate and the rubber may be both either dry or wetted with alcohol, or with water. Probably on the whole it is best to treat the plate while it is wet with water, and this has the further advantage that other deposits on the surface, which sometimes occur, are also removed. It is generally desirable to clean the surface of all negatives by rubbing while wet; but care must be taken that the gelatine is not too soft to be injured. Injury is shown by a blackening of the rubber from the removal of a part of the image. Plates that show this should be well washed, then soaked for a few

minutes in an alum bath, and washed again before the surface is cleaned ; but there are not many commercial plates that require the alum bath.

The stains due to the developer are of quite a different character and require different treatment. They are *in* the film not *on* it, and, therefore, must be dissolved out to get rid of them. The acid-clearing baths so often recommended do not get rid of them, but lighten their color, at the same time making them actually less soluble, and so fixing them in the film. It is sometimes said that if they are made light in color, so that they have no practical effect, their presence does no harm. But so long as these oxidized products of the developer are there they cannot be relied upon to remain in the light form ; they will, at least sometimes, darken again. It is certainly better to get rid of them altogether than to trust to their remaining of a light color. And they can be got rid of, though not by ordinary "clearing solutions."

The dark-colored products of the oxidations of ordinary developers are, generally speaking, soluble in alkalis, giving dark solutions and precipitated as light-colored deposits by acids. The clearing solution that I recommend, and I use it myself, is a weak solution of caustic soda. A few drops (say, about four or five) of a 10 per cent. solution are added to each ounce of water, according to the bulk that is desired. The plate is allowed to soak for a few minutes in enough of the solution to well cover it. If the liquid darkens perceptibly it is thrown away and a fresh quantity is applied, and this is repeated until a few minutes' soaking in fresh liquid has no apparent action. The plate is

then well washed. The advantage of this method of clearing is that the staining matter is removed, not merely changed in color, and so long as it is present it is of its darkest color and, therefore, can be clearly seen.

DEVELOPMENT WITH METACARBOL AND RODINAL, AND A PERMANENT INTENSIFIER.

By H. M. BEELES,
Great Valley, N. Y.

THE basis of every photograph—the first principles, technically, on which its excellence depends—is the negative.

Every experienced operator understands that the production of a negative technically perfect begins with the seating—*i. e.* locating of the subject under the light, and that the first essentials are proper posing, artistic lighting, and correct timing of the exposure. Without these it is impossible to secure such results; and to do this so uniformly as will please your patrons and establish a wide reputation such as *artists* assiduously study and labor to obtain, sometimes through many long years, must be the ambition of every successful photographer.

However well all these points may have been attended to in the operating-room, the acme of perfection will not have been attained without correct development, and it is more particularly to this point that I invite your attention, because in recent years chemistry has added largely to the resources of dark-room work, and those



W. J. Root,

A DELSARTEAN POSE.

Chicago.



J. E. & A. J. Rösch,

St. Louis.

A PORTRAIT FROM THE GRAND PRIZE DISPLAY
(AT CELORON, 1897).

Engraved by The Albany Engraving Co., Albany, N. Y.

who have failed to keep up with the procession have only themselves to blame if they find themselves far in the rear.

I cannot assume that what, in my experience, I have found most satisfactory to me will prove the same to all others, simply because we cannot all of us handle chemicals alike; but as I have reached a point higher in this line than ever I have before in an experience of a quarter of a century—a point that has certainly added dollars to my income, lessened my expense account, and given me extreme satisfaction, while it has lessened my labor—I think I cannot do better than to record here, so far as a description can record, the facts that have led to these results.

For four years I used rodinal, because while it was not as economical as pyro, I could get more uniform results with it, and often save a negative that with pyro must have been discarded; but when a few months ago I began the use of metacarboll I found I had something better, because of the wider latitude of exposure permissible and the ability to modify the effects of light and shade by timing and development; but I further found, that by a combination of rodinal with metacarboll I could secure some remarkable results.

Illustration: May, 6 P.M.; dark, cloudy day. Babe, three months old, from a distance; cannot come again. Did I try it? Yes, and got a good negative, too. How was it done? I will tell you: I put the chair in position and focussed sharply on it; being sure it was in focus front and back, and using the same stop I am accustomed to use in a strong light. While the mother placed the babe in the chair according to my direction I

adjusted the plate-holder in the camera and removed the slide. Then I quickly arranged the dress, corrected the position, and saw that the hands were as nearly right as is possible, asked the mother to step aside, whistled, making at the same time an exposure as short as possible with an ordinary time-shutter.

They placed an order for "half a dozen if proof is satisfactory." (When I heard from the proof the order was raised to a dozen, with the remark "I presume we shall want more.")

The customer had gone before I took the trouble to develop the negative. With that I proceeded as follows: The plate was $6\frac{1}{2} \times 8\frac{1}{2}$ inches. I placed eight drops of rodinal in the graduate and added two ounces of metacarboll made up after the formula accompanying each package of the pulverized metacarboll powder.

The image began to appear in ten seconds (temperature of solution, 70° F.), and in about three minutes development was complete—no intensification necessary. The negative was well modulated and produced fine results.

Rodinal acts in a sense as an accelerator, but does not serve to add intensity to the high-lights alone; it seems rather to produce a certain instantaneity to the effect of the exposure on the film, reaching deep into the shadows, and produces a marvellous amount of detail as unexpected as it is pleasant to the eye—that is, when regarded in the light of a previous experience with negatives taken under similar conditions.

The same experience is realized when you may have a group to take at an unseasonable hour, or in a weak light, or with a slow-acting lens; but with a normal light the rodinal will not be required, indeed, you can

use one-half old developer to advantage with an ordinary exposure.

The printing quality of the negative is unsurpassed, and will compare favorably with that produced by any other agent, and I regard the production of metacarbols as a boon to the fraternity; nor does its power or usefulness cease when you no longer desire to use it as a developer.

Every photographer will occasionally have a negative with all the elements of excellence except strength. Such negatives must be discarded or strengthened—*i. e.*, intensified.

In this case proceed as follows: Wash the negative thoroughly to eliminate all traces of hypo, then lay in developing tray and pour over a solution of one part bichloride of mercury, saturated solution; 2 parts of water.

Allow the negative to remain, gently rocking the tray, until sufficient intensity is obtained; then wash thoroughly and flow over the negative:

Water	4 ounces.
Old Metacarbols Developer	4 drachms.

Wash thoroughly and dry. If on inspection you find your negative to be too weak you may repeat, and continue to repeat until you get the proper strength.

Such intensified negatives, if properly washed, are entirely permanent, and print with the brilliancy of a perfect negative that required no strengthening, which cannot always be said of some other methods; but of course you must use judgment in intensification the same as in developing. You can intensify in daylight, if you choose.

IS PHOTOGRAPHY "ART?"

By A. G. MARSHALL.

Brooklyn, N. Y.

It is time that the long contention over this point was set at rest. Is photography "art" in the same sense as, and worthy of a place beside, sculpture, painting, poetry, creative music, and drama? Some photographers of the "press-the-button" order contend that it is to the full worthy of a seat with the Muses, and point to their hundred a day productions in overwhelming proof. Others, of years of achievement and world-wide reputation, are content to rank their work with the applied sciences, preferring pre-eminence there to a questionable place at the tail of the fine-art procession. It is a singular trait in human nature that most of us like to be valued for something we are not, rather than for what we are, if the what we are not is a little out of the common. Probably nine men in ten take more pride in their skill in driving fast horses or catching big fish than they do in a successful business career; and more than nine women in ten thrill at the mention of some smudgy old crayon drawing "done" in two terms and a half at boarding school under the direction of "Prof." Niggle, who "kindly put on the finishing touches," or the amazing wax cross and lilies under a glass shade executed under the instruction of "Madame" Niggle at the same "art centre," and yet these same otherwise lovely women scarcely feel it an honor that they have exemplified the whole chapter of housewifely

virtues mentioned in Solomon's proverbs. And so with many photographers. It is not enough that they are at the head of one of the most wonderful sciences and useful arts known, but they itch and burn for a place, however obscure, on the pedestal of the sacred nine. Just think—ten muses—how it would sound. Nine is a mystic number, a triad of trinities. Make it one more, and the mystery and poetry are knocked in the head. Ten is for metric measurement, for ready reckoning, for quick lunch, for fake museums, for rapid sales at small profit. If photography is to be a new muse one of the old must get out sure, for ten would make the gods weep—with laughter.

The "fine arts," as distinguished from, but not necessarily more honorable, than the "useful arts," are essentially creative, the expression or embodiment of ideals. "Holding the mirror up to nature" by whatever method is not art any more than printing books is literature. Does photography create or give expression to ideals? If so, it is a fine art. On the other hand, does it merely reflect what is before the camera? If so, it is no more art than printing books is art.

There is a wonderful instrument of modern invention which is capable when operated by persons of fine musical taste of giving the effects of a grand orchestra. The tones are produced wholly by mechanism, and in the hands of a person devoid of musical sensibility the effect would be extremely dry and monotonous. But one possessing taste and conversant with the intention of the music to be produced can give life and expression to the performance by means of increasing and diminishing the volume of sound, accelerating and retarding

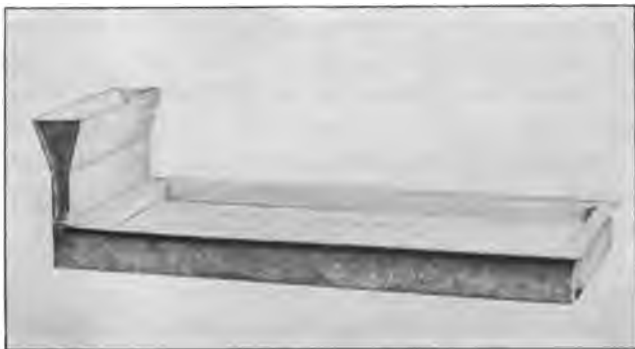
the tempo, and variously combining the different qualities of tone by means of "stops." The result is a musical performance, but it is not music as the expression of a composer's or an interpreter's soul. It may, however, be infinitely better than hundreds of vocal and instrumental "renditions." To use the voice or the hands in the production of tones is not necessarily musical expression.

Photography is similar to this instrument. The delineation, corresponding to the notes, is wholly mechanical, and is produced independently of one atom of artistic feeling on the part of the photographer. But if the photographer be possessed of artistic taste he can by the various means of controlling and modifying the process, besides selecting the most pictorial aspect and illumination of his subject, produce pictures which are not indeed art in the sense of a drawing from the hand of a master, but which are highly artistic and enjoyable by persons of artistic feeling. This is the whole situation, and it would be productive of much cordiality and mutual helpfulness between painters and photographers if it were understood. Photography as "fine art" never will be admitted. But artistic photography, superlatively so—infinitely better than hundreds of "hand paintings"—will be admitted and welcomed to an honorable seat near the sacred nine.

A DARK-ROOM NECESSITY.**By M. HERBERT BRIDLE.**

Philadelphia.

"KEEP your developer cool," says the "Notes" on a formulæ circular accompanying one make of plates. "Use ice water in the developer during warm weather," says another. Most desirable that both the operator and developer should "keep cool" when there is a batch of plates to be developed at the end of a "warm" day, with the thermometer at 98° in the shade. Thus it is in "fly time;" but six months later the "Note" most applicable is, "Do not have the developer too cold, about 65° is right. Use a little warm water in the developer if too cool."



Now I like pyro when some one else uses it, so that their hands get stained and not mine; but I like eikonogen and hydrochinone better, and it is when using it that

all the useful notes quoted above do not "fit the case." When one has from twenty-five to seventy-five 5 x 7 plates to develop as well and quickly as possible, he does not want to bother with a dose of "ice water" in summer time or a measure of "warm water" in winter, and so to avoid the necessity for using either I have made the water-bath illustrated herewith.

It is two and one-half inches deep by thirty-six inches long and twelve inches wide. The centre of the top is recessed one inch deep, leaving one inch margin all around level with the sides. At one end a trough rises six inches above the top of the pan, which is one inch wide at the bottom and flares funnel shape to the top, where it is three inches wide.

This trough extends all across one end of the pan, and is used for introducing water into the pan. All joints are water-tight, and the whole thing is made of galvanized iron. In summer time water is run into the trough until the pan and trough are filled, and then a piece of ice is set edgewise in the trough and allowed to melt in the water, thus cooling the whole thing. In winter warm water is introduced for a like purpose, and if need be a small stove may be set under one end, the slight heat of which will keep the water at an even temperature. I use, however, a large rubber bulb from a "flower-spray," which serves to abstract surplus water from the trough, caused by the melting ice, or to introduce warmer water from a supply at hand in winter.

When ready to develop a small quantity of water is run on the recessed bottom, and into this the trays are set.

A pan of the size mentioned will hold two eight by ten



S. H. Parsons.

A DREAMER OF DREAMS.

St. Johns, N. F.

Engraved by the Phila. Photo-Engraving Co., Philadelphia.



Alfred Stieglitz.

A VENETIAN GAMIN.

New York.

and one five by eight tray. Each tray holds developer of different grades. The one, eight by ten, "all old," the other eight by ten "half fresh, half old," the five by eight "all fresh." Plates can be started in the "half-and-half," and as they come up be treated accordingly, and, as the temperature of each tray is alike all the time, much more even results can be obtained.

In hot weather, after a plate is developed, it is rinsed under the tap for about half a minute and then dropped into the washing-box, which has been previously filled with water and had a lump of ice left in it to cool it, and there all the plates are placed as developed, and the developer allowed to soak out of them for fifteen or twenty minutes after the last one goes in. Then the water from the spigot is turned on, and they are well washed before being fixed in upright fixing boxes. Of course, in cool weather they are washed and fixed as developed, there being no danger of the film softening, and by the above method the cold soaking also avoids softening.

Any sheet-iron worker can make the pan for two or three dollars, and in the cities a five-cent piece of ice will serve to chill both pan and washing-box.

All the above may be stale news to some one, but many others may find the plan as useful and new as it was to the writer when he hit upon it.

ADJUSTMENT OF DEVELOPER TO EXPOSURE.

BY JOHN BARTLETT,
Philadelphia.

It sounds like a photographic truism to say : "The perfect negative is the outcome of proper adaptation of developer to the character of exposure." If the time has been correctly estimated and the developer tempered thereto, anyone may work out the plate's salvation without fear or trembling, but when the personal equation of under- or over-exposure is taken into consideration, the evolution of the perfect becomes really a fine art, and foreknowledge and acquired skill are demanded if one looks for softness without smear, high-lights distinct and well defined, and shadows full of detail going by imperceptible gradations into the lights.

How shall this knowledge of proper adjustment be acquired? By experience, of course—not by mere dosing with bromide, deluging with water, or spurring with alkali—nor by feeling one's way with the leading string of tentative development.

Some start out on the very cautious track ; thus, not knowing the exposure, let us first bring out the detail with weak pyro, and then pile it on to build up intensity. Others say start with the minimum of alkali, and if undertiming is evident, then apply the increments of alkali. By both plans experience attains to good results, and the votaries claim that the special method is the only practicable method of manipulation. But there

will come a time some day when your tentative method will be found wanting, and better results will be obtained by more direct methods.

We hardly appreciate the resources we have in our phalanx of modern developers. We know a good deal about their action, but do not always take advantage of their special agency.

Pyro is still a faithful ally in many cases, especially for obtaining plucky vigorous negatives, but when the greatest amount of detail is demanded in the resulting negative, it is unwise to cling to it and seek for detail by doses of alkali when better results may be more safely and effectually obtained by one of the other reducing agents whose tendency is more to softness than pyro.

Suppose we wish to develop an exposure in which we have certain colors which unequally affect the sensitive plate, as blue and yellow or red—that is, we desire to equalize the action of the light. It certainly would be unwise to give a short exposure and employ a strong development, or prolonged exposure and a weak development with mixed hydrochinone and metol. But how are we to treat an enforced short exposure? We must seek for a developer which will work out all the detail which the light has impressed, and no other developer is so efficacious here as glycin—the slow giant—and why should one not employ it instead of hurrying up disaster with pyro and alkali? Glycin and metol are mild and penetrating. The trouble is, photographers are apt to discard these excellent agents because they do not expedite development. They want the seven-leagued-boot-kind that get over the ground in a trice.

The advantage of glycin over pyro with short exposures is that it gives less dense high-lights and stronger shadows—that is, its action being slower it equalizes better the distribution of light and shade. We have a means of increasing the contrast in a glycin developed plate by the judicious application of a second developer, such as hydrochinone. The practice of employing mixed developers is excellent, and the virtues of both constituents may be secured. Glycin hardly gives vigor enough when used alone, especially if the subject has been fully exposed. With very short exposures it does give more contrast.

It is foolish to adopt a certain constituted developer and make it applicable to all conditions of exposure by merely varying the proportions. Some combinations, as, for instance, hydrochinone with metol or with eikonogen, have, it is true, a rather wide field of application; but it is safest to study the character of your illumination and adjust the special developer to it. Recently I encountered a batch of plates which worked flat, giving no contrast and having a tendency to fog with prolonged development. Here, strange to say, nothing worked half so well as ferrous oxalate. This gave clean, rather brilliant negatives, wonderful when contrasted with the results from pyro, hydrochinone, and the rest. We cannot afford to relegate the old ferrous oxalate as yet to the limbo of desuetude.

If we have failed to get sufficient definition by using too large a diaphragm in exposure, there is a remedy. Use a developer giving contrast, such as hydrochinone. It is surprising how effectual it is in correcting lack of definition in outlines caused by diffusion of focus.

For developing exposures lacking in sharpness nothing equals hydrochinone; at least in my experience I have found it so.

I have said a word about the range of action attained by using mixed developers. I do not like to recommend any developer as a standard for "all sorts and conditions" of exposures or plates, but can say that the following formula, if judiciously applied, will cover a multitude of diverse cases :

A		
Hydrochinone	85	grains.
Elkonogen	75	"
Sulphite of Soda (cryst.)	1½	ounces.
Water	32	"

Dissolve and make distinctly acid with sulphuric acid.
Filter carefully.

B		
Carbonate of Potassa	4	ounces.
Sulphite of Soda	1	ounce.
Water	32	ounces.

To be used, equal parts of each, without dilution unless conditions demand it.

DISPLAYS.

BY H. C. STIEFEL, PH.D.,
Pittsburg, Pa.

"It's funny," said the man to me, "but I have not been photographed once in the last eighteen years; I never think of it; I don't even know where the nearest gallery is. Now, if I could get photographed in a drug store it would be a different thing. I'm sure in that case I'd be photographed once a year regularly."

"But why in a drug store?" said I.

"Oh, you see, the drug-store windows are always arranged so that you look into them involuntarily in passing. Why, man, I can locate almost every drug store in town simply through seeing their windows. But you seldom see a photographer's display case, excepting, perhaps, in front of some big department store. Now, if the druggists took photographs, you see they would remind you of it most decidedly every time you passed their windows."

This set me to thinking, and I finally decided to call upon one of my pharmaceutical friends and talk the matter over with him. So, behold me, one evening, seated in the back room of the store, having a long talk with Erny, the druggist:

"You see," said Erny, "in the drug business we must always be up and doing, letting the people see that we keep right along with the procession; we must show the people that we have a varied assortment of goods, and then we continually get in new supplies.

"You go into any drug store and ask the proprietor which part of his store makes him think most and gives him the most work. Nine out of ten will mention their show windows. We must change the display in our windows every week, sometimes we simply shift the goods from one window to another, but we then arrange it in a different way. We always try to get something new in the windows each week.

"We must show our goods or drop out of the race. To use a photographic expression, I may say that I am not the only dry-plate in the box. There are others. If I don't get out and develop, why my neighbor across



J. A. Brush,

CLARISSA.

Minneapolis.

Engraved by Anton Wild, Buffalo, N. Y.



F. A. Place,

A PORTRAIT.

Chicago.

the street will, and in a very short time no amount of accelerator will bring me up to his strength.

"He will get the reputation of being up and doing. Of my store and myself people will say that the one is filled with out-of-date stuff and that the other is asleep.

"Now, I arranged my windows yesterday for the ensuing week. Do I sit down and rest? Oh, no; to rest is to rust with us. I sit down, it's true enough, but only to work for next week. A few days ago I wrote to the Dr. Kilmer Co., of Swamp Root fame, in regard to a window display. Here is their answer:

PITTSBURG, PA., July 13, 1897.

DEAR SIR: Replying to your esteemed favor of the 12th inst., we have referred your letter to our travelling representative, Mr. Kipp, who will call upon you and arrange for the window display of our goods. Thank you for your kindness in the matter.

We have mailed you, as requested, the cloth banner.

Yours very truly,

DR. KILMER & Co.

"You see, they put in a window display for me; it is in their interest and mine. People passing in the street see it; they may pass on and not buy of me, but they have seen my window, and may drop in at some later time.

"And I guess here is where the average photographer has his greatest failing. He either cannot or will not make a proper display of his wares. Just go and look at their display cases—jammed in some dark hallway (where few see them excepting those going to be photographed. These are not the ones who need it; that's a 'fish that is already hooked.')"

"Very often the frames are covered with dust, and

have silken threads spun in graceful festoons in the corners. In some cases there are pictures that were made when you and I were young; portraits with beautiful golden yellow aureoles about the heads; bleached, faded, yellow.

“If a druggist had a window filled with such specimens he would close up shop in a very short time.”

There is some truth in what my pharmaceutical friend told me. Of course, not every photographer has three or four large plate glass windows filled with all kinds of gimcracks by day and illuminated with colored globes at night. Nor will the conscientious photographer get a display made up for him through his paper or plate-maker. Still less can he sell his display indiscriminately to the public at large. Here, of course, the druggist has the advantage over the photographer.

But the photographer can make a better and more effectual display than the druggist, if he only tries. Leaving other stores aside, let us continue with the drug store. Let the photographer get up a few small frames containing some good specimens of his work and put them in any druggist's window (or other stores). Let him carry out the idea a little further. Go to any druggist, and tell him that if said druggist will fill a window with baby powders, baby food, baby soaps, etc., he (the photographer) will put in a display of baby photographs. Any and every druggist will gladly consent, not just out of love for the photographer, but because it will attract attention to his own display.

A dozen cabinets alone will serve the purpose. They will attract attention, and that is just what you want if your work is good.

At another time, a window filled with toilet preparations, powders, perfumes, soaps, brushes, etc., will serve for another class of portraiture.

Above all, however, the photographer should change the contents of his own display cases very often ; it means much trouble and extra expense, but it will pay in the end.

“Hustle,” “push,” “energy,” “ambition” enable the average druggist to retire with a competency while still in the prime of life. Why should not the photographer be able to do the same? The more so when we consider the fact that the photographers’ profits are decidedly higher than the druggists, even if the druggist does now and then sell half an ounce of hypo for fifty cents.

UNCLE NATHAN HAS HIS PICTUR’ TOOK.

By HERBERT RANDALL.

New Haven, Conn.

“Now look pleasant, just a minute. S-t-i-l-l! Yes! yes! your watch chain’s in it! Not so sober.” “Durn this collar! ’d yeou say six fer half a dollar?” “Yes, don’t move; there! now, right here! q-u-i-e-t!” “This thing back my ear sort o’ cramps my neck, ’nd say, take the gol-durned thing away! Hold still? I should say I could! Guess yer’d better let me stood.” “Kindly drop your chin a little.” “Gosh-all-hemlock! le’ me whittle half this cussid collar off; them air corners makes me cough.” “Yes, your whiskers look all right; turn a little toward the right; splendid! now, s-t-i-l-l!

“Can I wink? Did yer git it? I sh’d think that’d spile the picture; say, perfesser, do yer want yer pay right deown, er when I cum agin? The wimmin-folks ’r cummin in; s’pose I wait till then, an’ see ef they pernounce the likeness me; the durn thing mebbby ’ll get away! ha! ha! perfesser, ’day! good-day!

THE ELEMENTS OF PHOTOGRAPHIC SUCCESS.

By H. C. VOORHEES,
Meriden, Conn.

WHAT is photographic success? Is it a rise to fame through the medium of excellence in photographic art, or is it the honest accumulation of property, superinduced by excellence in photographic art?

After careful consideration the latter would seem to be the true definition.

It would then appear that the problem which should dominate the mind of every photographer after his launching into the business world is how he can with honor accumulate wealth by his productions in photography.

To insure this success the photographer should be able at any time, by reference to his books, to approximate the various amounts he has unnecessarily expended in purchasing his stock without careful selection, or at the highest market prices, to ascertain the amounts he has lost by injudicious advertising and through the many other sources.

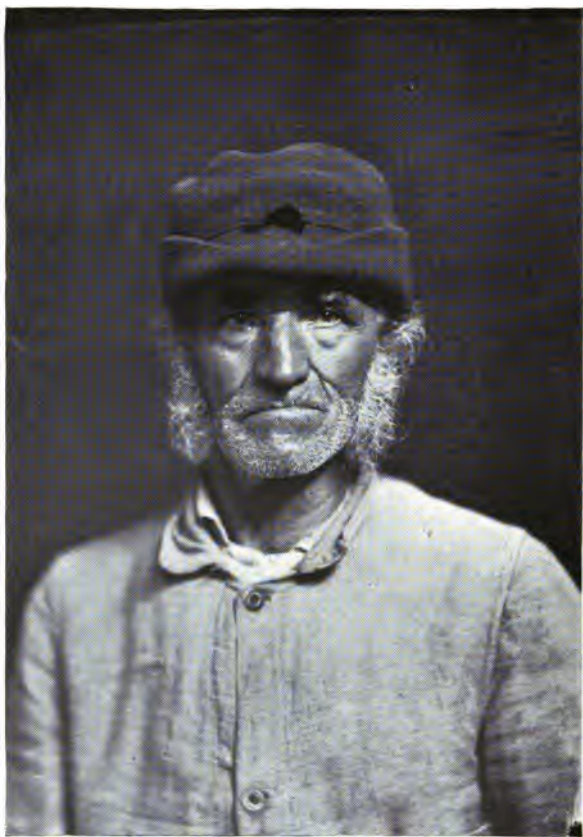


F. G. Schumacher,

Los Angeles.

A ROSE FROM CALIFORNIA.

Engraved by the Electro-Tint Engraving Co., Philadelphia, Pa.



J. W. Kellmer.

A MINER.

Hazleton, Pa.

Engraved by the Illinois Engraving Co., Chicago.

Commissioners of insolvency say that the books of nine out of every ten bankrupts are found to be in a muddle—kept without plan or method.

Of course, the elaborate system of bookkeeping as practised by large mercantile firms is not necessary to the average studio, but a simple, effective system is not only desirable but actually necessary.

The photographer who at the outset resolves to keep a set of books in a manner that will enable him at any time to refer to his past business has taken his first step toward business success.

Probably no portion of the business end of photography has, in the past, been more neglected than the reception-room. Proprietors of studios are beginning to realize that a proper management of this room will contribute in no small degree to business success.

The reception attendant should be a lady of good address, with a sufficient knowledge of her business to answer questions, or give advice in an intelligent or unintelligent manner as the occasion may require, and of sufficient tact to realize that in taking an order the question, "Will a dozen be enough?" is more to the interest of her employer than "How many do you want?" A customer having decided to get some photographs is usually undecided as to how many he wants, and is generally inclined to order as few as possible, and if the number decided on is a half dozen or less the remark quoted instantly conveys to him that he will commit a gross impropriety in ordering so few, and at once decide to do as others do and order at least a dozen.

The reception attendant should have a system which will insure promptness and not disappoint customers in

the delivery of work, and it should ever be the aim of this department to retain customers rather than secure them.

Retain customers? Yes; and if the attention and efforts of the photographer to secure new trade by the promotion of schemes in clubs, societies, schools, and among the public at large, were given to some of his patrons his business would profit thereby.

Typewritten letters to past patrons, calling attention to some novelty or new design of picture, some unusual portrait, or simply soliciting a continuance of patronage, will bring larger returns than efforts in any other direction.

Promptness in delivery is another rare jewel, as the customers who have been disgusted with the usual delay in delivering work are legion. First, they are promised proofs and are fortunate if they are not asked to wait or call again; then, after the order is given and the work promised at a certain time, they are told "Unfavorable weather has prevented," etc., or are given an installment on their order and requested to call later for the balance. No wonder they are disgusted and vow they will go elsewhere next time.

"How do your friends like your pictures?" is a question frequently asked of patrons. This question naturally implies to the customer that a doubt exists in the photographer's mind as to the standard qualities of the work he has delivered. If our tailor asked how we liked the suit of clothes he made for us, we would feel that sometimes his customers were not satisfied with his work. Is it not also the case with the photographer's customers?

Successful negative work may properly be called the most important work of the studio. In the examination of a negative the query of some operators is, "Will it go?" or "Is it good enough?" when it should be, "Is it the very best I can do?"

The study of light and shade on faces, by constant observation in the house, on the street, and elsewhere, is a source of great benefit to the operator, and there is no better means of securing a thorough knowledge of light and shade under the skylight than the use of a large plaster bust, painted to a neutral tint and mounted on a turn-table or similar appliance.

Many operators wear white gloves when posing a lady in dress of delicate fabric. This scheme undoubtedly creates a pleasing impression in the mind of the subject, and is to be commended. Some photographers have the burnishing done in a conspicuous place by an assistant equipped with white gloves, which probably convinces patrons that no effort is spared to deliver unblemished work in that studio.

Business ability alone will not bring success in photography, nor will unaided photographic skill bring success; but where you find true photographic success you will find as the motive power a rare combination of business system, technical skill, and true moral worth, which brings not only financial success, but assured respect and esteem, without which no success is complete.

HOW TO UTILIZE LIGHT-STRUCK PLATES.

By ERNEST BROWN,
St. Michael's, Azores.

SOME time ago I found that it was possible to make some valuable use of a plate which had accidentally been exposed to white light, and as I have not seen it in print, I hope this short article may prove useful to some of the readers of *MOSAICS*.

If any of my fellow-workers should be annoyed at finding the cover of one of their dark slides (plate-holders) has slipped out of place, if not properly fastened, or that some curious person has drawn the cover of the slide entirely out to see what is inside, thus spoiling the plate, or, may be, have themselves removed the cover of one of a box of plates, thinking it empty, and find a plate still left, do not throw the plate away, for you can make a transparency out of it.

One day, when out taking a few photographs, I was vexed to find that the cover of one of my plate-holders had slipped out of place, thus exposing part of the plate. I was about to throw it away, when I thought I would try an experiment, and see what the result would be. I first removed the cover altogether (in the shade), thus allowing the whole of the plate to be exposed for two or three seconds. I then replaced the cover and gave it an exposure of five minutes in the camera, when the exposure ought to have been but a second or so. After replacing the slide I took down the number of holder. On my return I went to my dark-room and began to develop the plate thus treated,

thinking that probably I should only get a plate badly fogged, which would turn black as soon as dropped into



No. 1. Negative.

the developer. I was mistaken, for I could see traces of something—what, I could not tell—coming out on it. When I got through developing and fixing I found I

had got a transparency, but rather weak. Since then I have made several other experiments in the same way,



No. 2. Positive.

varying the exposure, and find that if I give an exposure of about ten minutes on a bright day, using a plate of medium rapidity, I can invariably get a good trans-

parency. For development I find a developer of normal strength the best. Do not be afraid of the plate turning dark on both sides, as you will find that it requires to become pretty dense before fixing. From the transparency you can get a good reversible negative in the same way that you get lantern-slides from negatives. The two illustrations will give you some idea of what can be done. Fig. 1 is a print taken from the positive, giving a negative on paper. Fig. 2 is a print from the reversed negative.

My advice, therefore, is not to throw away a dry plate which has happened to be exposed to white light; if you are not able to use it at the time, you can keep it in one of your empty boxes. But in that case you must load it in your dark-room, for too much light getting at the plate will spoil it even for this purpose. You may, some time, need such a plate, especially if you are away from home and you have no other plate left, for in this way you can get a picture which otherwise might be lost for lack of a plate.

THOUGHTS ON BUSINESS.

BY E. E. SEAVY,
New Castle, Pa.

ALMOST every one has some natural talent in one direction or another, and writing for a magazine is something that I know I have no natural talent for, and consider it out of my line. But if I can say a few words that will be of benefit to any photographer, I will feel that my efforts have not been in vain.

Speaking of natural talent, how many men in the photographic business to-day would fill some other station in life to much advantage (don't try to count them). This may be true of almost any profession or business. And so many photographers could improve their work if they only would. Their only aim seems to be to finish the work in the cheapest and the quickest possible way, not thinking of the damage the poorly finished work will do them in the future; while if they would try to see how much better each order could be finished than the one preceding it, they would find themselves repaid in more ways than one, as I have found out by experience. When something new comes out that will improve your work, get it. I do not advocate buying everything that comes along, for there are many novelties that are of no use; but one should use some judgment in the matter. Study the work of the leaders, especially the lighting and posing. You may ask, Who are our leaders? They are the men who always attend the conventions, take an active part in them, and are always on the alert for new things, for ideas that will advance the profession. The photographic business is making such rapid strides that a man must be constantly moving in order to keep up with the procession. If one always stays at home, sees no work but his own, (except an occasional half-tone in the journals) he thinks his own work all right, sees no need of improving it, and consequently falls far behind.

This is one great reason I have for being so enthusiastic over the advantages of attending the State and National Conventions. But attending conventions will do you no good unless you apply what you have seen



E. H. Berlin,

Blairsville, Pa.

"THE JOKE'S ON YOU, PAPA."

Engraved by the Electric City Eng. Co., Buffalo, N. Y.



Ye Rose Studio,

SIMPLICITY.

Providence, R. I.

Engraved by the Maurice Joyce Eng. Co., Washington, D. C.

and learned in your own work. Improve your time. When you are not busy with your hands, put your brain to work—how to improve your gallery, how to make it more attractive, and how to arrange your show-cases. Change the pictures often, and, above all things, keep them clean. How many cases we see that look as though they were never washed, especially on the inside. The outside gets an occasional dust off, very hurriedly, though; and it shows it. Much the same may be said of the whole gallery. If you expect to trade with the better class of people, expect to make them your customers and get good prices, keep your gallery clean and attractive. There has been much talk of the “cheap John” and how to get rid of him, but as long as there are photographers there will be “cheap Johns.” A good way to get rid of a certain class of them would be for every photographer who takes any pride in his own profession to improve his work, and to make such a difference between the good and the bad work that the poorer sort would give up and get out of the business. Educate the public so that it will demand good work, and there will be less patronage for the “cheap Johns.”

CONCRETE FALSEHOODS.

By E. K. HOUGH,
Fredonia, N. Y.

THE Evil One is said to be the “Father of Lies.” Falsehood takes many forms. Lies are mainly spoken or uttered, but they are also acted and constructed. A

house, a ship, a carriage, or furniture constructed of poor and imperfect material, when good material was agreed upon or understood, is a concrete lie. So, too, a photograph made of doubtful material and carelessly or imperfectly treated as to permanence in any part of the process, is a concrete lie, although it may not strictly follow with imperative logic that the maker of said photograph is a concrete liar.

But undoubtedly the picture so made and issued is, in and of itself, a concrete falsehood; and the relation the maker and utterer of such a falsehood holds to his creation cannot be either honorable or desirable.

It behooves us all, then, to see well to it that the pictures we put out are not registered against us as concrete lies, but rather that we can count them as honest utterances which we can swear by in earthly courts or the Court of Heaven, if need be, and assert, with all confidence and honesty, that they truly were what they were understood and promised to be, of good material, faithfully treated for permanence to the best of our knowledge and ability. We must make our work as faithful and self-respecting as if we were giving utterance to it with our human speech, upon honor, as the truth.

By such means, and by such means only, can we maintain our own integrity, and hold up our art as a truthful and honest business, deserving of respect and confidence. Are we all doing this?

A little retrospective self-inspection may help us to a conclusion as to the past, and a decision as to the future, that will clear away all doubts and enable us at least hereafter to assert with all confidence that our pictures are not concrete falsehoods, but honest truths.

WHAT THEY MISS.

By F. B. McCrary,
Knoxville, Tenn.

I SUPPOSE it is because the editor of *MOSAICS* knows of my enthusiasm over the value of our conventions that he asks for an article on "What They Miss" who do not attend the gatherings of the craft. But I realize that the subject is too large for my capacity of expression. I feel how impossible it would be for me to go on and grow in my profession without the conventions; but no one better appreciates than I how impossible it is to put down on paper all that a convention means. What do they miss? Why, they miss it all; the inestimable encouragement of meeting one's fellow-workers face to face; the opportunity of seeing the greatest exhibition of photographic work the country can produce year by year; the chance of comparing the work of the leaders side by side in one grand array; the sessions where "men who know" give their ideas on things in which we are all most interested; the school where those who are best fitted give practical demonstration of the principles of portraiture as it should be done; the opportunity of seeing men of repute working under the same conditions, and producing different effects, with the chance to question them at each turn of the hand or camera. Then they miss, also, the flow of good fellowship which comes only when men rub together in fraternal association; they miss the advantage of the holiday—the open-air outings, and all the other purely social pleasures which can only be indulged in when a man leaves his work and studio behind for a holiday.

I wish I *could* tell all they miss ! If I could, the next Celoron Convention would gather in every one of the ten thousand photographers who focus between Klondike and Tampa.

Look at the engravings in the photographic magazines, selected from the best of the convention work. Would you not like to see the originals, study their technical and artistic beauties, and meet the men who made them ? Would you not like to hear for yourself what Pirie MacDonald has to say about the conduct of a business ; what Rockwood has to tell of his forty years behind the camera in New York ; what Röscher thinks of lighting and posing ; or Inglis on the new style of lighting, which gives us real portraits instead of "pretty faces," and pictures which bring double prices ? These are only part of the attractions of the conventions ; you can read what was said in the reports of the journals, but the magnetism and spur of the personal address you can only get by going to the convention for yourself. You can see Röscher's prize pictures in the journals, but how about the other twenty leaders whom he surpassed in competition for the grand prize ? Would you not like to see what they sent ? Perhaps there have been a hundred pictures reproduced in the various journals as "from Celoron ;" but how about the other five hundred ? You could have seen them and gathered valuable lessons from them at the convention. And so I might go on indefinitely ; but you can easily fill out the list of what they miss who stay away from conventions. One thing I will say, and it must suffice. If I can persuade you to attend one convention, State or National, I am very sure that you will



McCrary & Branson,

Knoxville, Tenn.

A DAUGHTER OF THE SOUTH.



Gustine L. Hurd,

A PORTRAIT.

Providence, R. I.

not miss another after that. Why not accept the hint? It costs me as much as it will cost you to give up business for a week and go to the convention; but I know of no better investment. The new ideas alone are worth ten times the cost of the trip; the pleasure is beyond valuation in dollars and cents; and the instruction you will get in that one week is of more practical worth than the experience of all the year under your own skylight. Prepare to go to Celoron in 1898.

THE NEW (OLD) LIGHTING.

BY WALTER B. LOOMIS,
Galesburg, Ill.

UNDER the head of "The Vandyke Style in Portraiture" in the August number of *Wilson's Photographic Magazine*, George G. Rockwood, the veteran in photography, says: "The new ultra-artistic phase of photography, which I have designated the Vandyke Style, is a successful effort to remove portrait photography from the realm of genre composition to the simpler forms of the old masters. There has been for years a tendency to unite or blend the art of portraiture with the genre or composition school, to such an extent that accessories have more than divided the interest with the figure or subject of the picture."

Surely no one knows better than the average photographer (I am writing of the better class, men of ideas and leaders of the profession) to what he refers and the truth of this latter assertion. We as a class have used elaborate accessories in our figure portraits. We have

flooded figures and heads alike with light, bringing, thereby, backgrounds and accessories into the same prominence as the face or figure. The movement in the last few years for artistic lighting has brought home forcibly the fact that but very few following photography as a profession have been endowed with the first principles of artistic portrait lighting. By this we do not wish to infer that there have been no such men as M. Adam Salomon standing out as grand exceptions; in other words, such men as he stand forth as the artists of the profession, of whom there have been comparatively few. A number of years ago I came into the possession of a reproduction of several of Salomon's photographic portraits. I treasured those reproductions, and looked at them for hours until I realized even from those small reproductions that we were in possession of something, an almost, and to me at that time entirely, indefinable something that made all other photographs we had ever seen sink into insignificance. The portrait stood out separately and alone—the sole thing of interest in the composition; background and accessories *were* background and accessories. You hardly noticed their presence, your eye immediately became riveted on the figure, and could not be distracted, for there was naught to distract. Quoting again from Mr. Rockwood's article: "In a word, this treatment means to not only subordinate everything to the portrait, but to go a step farther and *subordinate everything in a portrait to the head or likeness alone.*"

I have before me as I write a cabinet portrait of a gentleman which was made upon this principle. It is a bust portrait, and the coat is almost lost in the back-



W. B. Loomis,

A PORTRAIT.

Galesburg, Ill.



J. B. Schriever,

A NEW POSE.

Emporium, Pa.

ground. As you look at it your eye becomes fastened upon the face, and there remains; it is the one point, and the only one, of interest in the picture. I look upon this picture as one of the most meritorious heads I have ever made.

This brings me to the other side of the question—the question of the education of our patrons up to the appreciation of this style of picture. As I have said before, this picture I realize to be one of the best things I have made; but did the subject appreciate it? No, indeed; he preferred another made at the same time after the more common and time-accepted method of lighting used by the rank and file of the fraternity, although it could in no way compare, as a portrait, with the one mentioned.

We cannot all, as some have done, “pull up stakes” and hie ourselves to some wealthy neighborhood in some large city, where the wealth, refinement, and education of travel and contact with works of art furnish an appreciative community to commence operations upon at once. But we can commence to educate our own patrons in this manner. When we have a good subject we can expose an extra plate or so—that is, make them negatives after the style they have been accustomed to, and then make one or more, as the case might seem to you to require, after the style we have under consideration. Get a nice collection in this manner, frame them up nicely, put them in a prominent place in your studio, where none can fail to see. Call the attention of your patrons and visitors to them; explain the beauty and qualities of this style, and we believe that in this manner the seed may be sown broadcast over the land and result in a perfect revolution of portrait photography.

ILLUSTRATION BETTER THAN PRECEPT.

By XANTHUS SMITH,
Philadelphia.

THERE is much written about the artistic phases of photography, and we are sorry to say that the subtlety of art is so peculiar and so difficult to understand and to explain, that much that is written is not only useless but perplexing. Art-teaching is almost impracticable



L V. Kupper.

WHERE THE ROAD PARTS.

Edinboro, Pa.

without actual demonstration in the way of art illustration. And two subjects having come under our notice, which illustrate beautifully two phases of art, we will present them with such criticism as may help to make them intelligible and useful. They are the work

of Mr. L. V. Kupper, who seems to have been born an artist, and it matters little in what direction chance may have led him in giving expression to his faculty, his work would certainly be that of one thoroughly imbued with the true artistic feeling.



L. V. Kupper.

WILLOWS IN WINTER.

Edinboro, Pa.

The pictures referred to are called "Where the Road Parts" and "Willows in Winter." The former is an example of art as expressed solely in variations of light and dark. Not the slightest conception of it could be conveyed by outline and coloring, while it might render it more perfectly like nature and not convey the particular force and sentiment of the picture better than is done in the photograph. The important qualities in art are nicely exemplified in this beautiful bit of sentiment. Breadth of effect—repose and the advantage of a large

amount of half tint, with small contrasting touches of light and dark. What could be more simple and at the same time more impressive than this little picture? It matters not to an artist what the dark objects represent; their size and location are just right, as is also the height of the horizon. Take a card and cut off a portion of either the top or the bottom of the picture, and see how the effect will be injured. The points of dark in the centre of the work play entirely second to the nearer groups, and greatly aid the perspective thereby, and the objects being double in themselves, and each of an entirely different character, is a fortunate circumstance. It is possible that a finer example could not be found of what may be conveyed in pleasing artistic effect and poetic sentiment by an extremely simple subject treated in a few gradations of light and dark.

In "Willows in Winter," well-balanced composition and graceful lines are to be found. This subject could be very well conveyed in outline solely, and is an excellent exemplification of directness and force of line. The distant outlines sweep in boldly, and are nicely contrasted by the rounding and angular termination of the bluff, and we have in the main group of trees an intricacy and grace of line that are peculiarly fortunate; the reversed line, or line of grace, appearing in every trunk. Imagine what the effect would have been had this group consisted of an equal number of stems that were perfectly straight and running parallel to each other. The foreground line running from the base of the group of trees out of the left side of the picture is one which, under some conditions, might be too stiff and unbroken, but in this instance it is so varied and reversed in light

and dark that it is perfectly agreeable, and serves well as an example of the value of a direct line in a picture, such being considered as giving firmness to a composition and grandeur of effect. It is parallel to no other in the picture, and offsets the main direction of the mass of tree stems.

Both these pictures are fine examples of the value of simplicity in art. Too many pictures are overcrowded—and a crowded composition is more difficult to avoid in photography than in painting. Most of us would gladly dispense in our composition with much that we cannot get rid of. But let us feel that in order to get out of topography and into art we must strive for grace and simplicity in our compositions.

OUR PRINTING.

BY L. V. KUPPER,
Edinboro, Pa.

THE majority of photographers think that when they have a good negative their picture is about made. This may be so where the printing is done carefully and well. But how is it where the negative is intrusted to every Tom, Dick, and Harry? The poor bleached prints one sees all over the country are evidence that printing is rarely done as it ought to be done. In some establishments this work is even left to the care of mere children. Now, if we would stop to consider the matter, we would be forced to the conclusion that good work cannot be done in this way, especially when the quality of the

negatives varies, and who is really so fortunate as to have all his negatives so perfect that they require no dodging in printing?

It is just as important to have printers with artistic ideas as it is to have an artist under the skylight. It is much easier to get poor prints from a good negative than it is to produce a fair print from a poor negative. In printing from several grades of negatives it is far better to sort them, place the slow printers in the best light of the window, and the quick printers in the duller light; slow printing gives the best results, as the prints tone better, have strength and more brilliancy, and do not bleach in the fixing bath. Negatives which ordinarily give harsh contrasts can be made to give softer prints by placing between the negative and the paper a diffusing screen, easily made by cleaning spoiled cut films and grinding with pumice stone to give them a ground-glass surface, on the principle of a child's transparent drawing-slate. These can be bought at stock houses. Very thin negatives are best printed in very diffused light and not toned very far. Glossy paper is better than matt-surface paper for such negatives; a similar effect can be had by flowing the back of the negative with ground-glass substitute or covering the negative with three or four thicknesses of tissue paper, or again by printing through blue or green glass, or porcelain plates.

Nearly all of the better grades of negatives give their finest results if printed in carbon or platinotype. Too much cannot be said in favor of these two printing processes. Our greatest trouble when printing-out papers are used is the bleaching of prints from dense negatives,



H. H. Pierce,

THE DANCING GIRL.

Providence, R. I.

Engraved by the Williamson-Haffner Eng. Co., Denver, Col.



Rose & Co..

THE LETTER.

Denver.

Engraved by the Electric City Eng. Co., Buffalo, N. Y.

which are generally printed in the sun. They should be printed very deeply. The best remedy, however, is to reduce the negative. Negatives with great contrasts can be made to give passable prints, sometimes by local reduction; strong high-lights are best reduced by dipping a tuft of cotton in wood-alcohol, and rubbing with a circular motion over the negative where the reduction is wanted. Don't be afraid to try it. Take some old negative for your first experiments. Such negatives can also be flowed on the back with ground-glass varnish, and the varnish scraped away where the dense high-lights are; the shadows can be built up with stump and graphite. There is no trouble at all getting good prints at any season of the year, with any process or any negative, if we only give the work a little thought and a little extra care, exercise our judgment, and show a little ingenuity. Many things will suggest themselves as occasion demands, which would be difficult to write about at this time. We must never forget to keep clean hands and dishes before handling any printing-paper.

Prepared chalk is a very useful article to prevent perspiration on the fingers from injuring the surface of the paper. Red spots on collodion paper can be prevented by using a few drops of saturated solution of carbonate of soda in the last wash-water before toning. The prints must be washed thoroughly before they can be expected to tone. We are all in too much of a hurry here; but it is better to make haste slowly; seven or eight changes of water are not any too many if we desire well-toned, permanent prints. Any good toning formula, used with common sense, will give good results. Test all your solutions with litmus-paper, and

make them up some hours before using, to give them time to ripen. A fresh change of water after toning and before fixing is also very beneficial; two fixing-baths are much better than one. The neglect of this precaution is, I fear, one of the causes of fading in our prints. A print which is not thoroughly fixed must necessarily fade, no matter how well the other operations are done. The second fixing-bath also prevents the formation in the film of gelatine prints those spots which afterward mar the beauty of the prints, and oftentimes utterly destroy them. Always fix in subdued light, and look through your prints by transmitted light; when they are clear they are fixed; if cloudy looking they are not. Keep them moving in the tray; separate them as often as you can, to prevent their natural inclination to mat together, especially in large batches.

Finally, give them a thorough washing; separating them by hand is the best method, although not the easiest.

I might go on, but space forbids. Let us use more thought and common sense in our printing methods, and endeavor to get the best out of our negatives. Why not make as much effort to get good prints as to get good negatives? If we make a good negative, and then from it a poor print, what have we gained? Every thought given to the making of the print will tell its story in the finished picture.

HOW TO MAKE CARBON PRINTS.

By E. L. MIX,
New York.

ALTHOUGH there are several excellent handbooks dealing with carbon printing on the market, the editor of *MOSAICS* has persuaded me that a short, practical account of the materials, outfit, and working of the process will be of service to the readers of *MOSAICS*. This, therefore, must be my excuse for offering information which is easily accessible elsewhere.

The photographer desirous of introducing carbon prints to his patrons will find it much easier, and less expensive, to make his own prints, rather than intrust the work to the mercies of a carbon printer for the trade. Once equipped for the work, very little experience will bring the requisite skill, and the actual working of the process brings with it an education in negative making which, considered for itself alone, is well worth all it costs.

First of all, we need a room set apart for the carbon printer. It should be conveniently arranged, with a trough or sink of ample proportions, say nine feet by two and one-half feet, the outlet connected with the main drain-pipe of the place, and a plentiful supply of running water. If you can install hot and cold water, so much the better. The room should be as far away as possible from the dark-room or print-toning rooms, to avoid any trouble likely to arise from the fumes of the chemicals used in these rooms. It should be kept

free from dust, well ventilated, and near to the printing-stage where the prints are to be made. This will enable you to develop prints while keeping an eye on others still printing, and save time in other ways. A good-sized table will be needed, with one or two drawers, and a sheet of zinc covering one-half of it, on which to cut the tissue, etc. A shelf or two underneath, on which to keep blotters, etc., will also be found useful.

For preparing the tissue, sensitizing, developing, etc., the following things are necessary : A deep zinc tray for sensitizing the tissue ; three zinc trays, say 8 x 18, 14 x 17, and 18 x 22 inches, for developing ; one 18 x 22 tray for aluming the prints ; two or three long, flat squeegees, one five inches and the other ten inches, the roller squeegee used for mounting albumen prints is not suitable ; three sheets of rubber cloth, one to be used in making the first transfer, another for the second or final transfer (this must be kept scrupulously clean), and a third to be kept in reserve for use in case either of the others should become stained with bichromate or otherwise rendered unfit for use ; a plate of glass, one-quarter or three-eighths of an inch thick, 20 x 24 inches for transferring or for squeegeeing the tissue after sensitizing ; two good-sized kettles for heating water ; a gas, oil, or other stove for heating purposes ; ground opal glass for making matt-surfaced prints and for final supports ; half-a-dozen sheets of Sawyer's or Elliott's temporary support, which gives a semi-polish to prints ; one Johnson or other actinometer to determine exposures ; chemicals, bichromate of potash, C. P., chrome alum, plain collodion, beeswax, resin, turpentine and



A. L. Bowersox,

Dayton, O.

AFTER THE CEREMONY.

Engraved by the Climax Eng. Co., Cleveland, O.



James Landy,

THE SISTERS.

Cincinnati.

Engraved by the Franklin Eng. Co., Chicago.

benzole. This list looks more formidable in print than it is in reality. Once provided, it will last a generation with occasional renewal of this or that as made necessary by constant use.

SENSITIZING.

To sensitize the tissue, which is supposed to have been obtained of the color desired in the prints (see colors listed in Anthony's or Gennert's lists), make the following bath :

Bichromate of Potash, C. P.	3 ounces.
Distilled Water	100 "
Carbonate of Ammonia	1 drachm.
Salicylic Acid	95 grains.

The acid prevents reticulation of the tissue after sensitizing, especially in hot weather ; the ammonia keeps the paper soluble, which, in its turn, facilitates development.

After cutting the tissue to the desired size, so that it will fit snugly to the negative in the printing-frame without buckling, carefully dust the surface with a soft camel's-hair brush, and immerse it in the sensitizing solution, film side upward, for two or three minutes. The temperature of the sensitizing solution is a matter of importance, and should be regulated with a thermometer. It should not exceed 55° ; 45° would be preferable in summer. If the temperature of the bath exceeds 60° the gelatine film of the tissue is liable to soften and run in streaks as it dries. Allowing the tissue to remain too long in the bath causes it to absorb too much solution, making it extremely sensitive to light ; such tissue also takes longer to dry, and becomes insoluble quickly. The shorter the time of sensitizing, the less sensitive

the tissue is, and the longer it will take to print; but three minutes is sufficient for a negative of average density; for a strong negative use a stronger sensitizing bath and sensitize for from four to six minutes.

DRYING THE TISSUE.

Much of the success of carbon printing depends on the drying of the tissue after sensitizing. If dried evenly and rapidly it gives a strong print with pure whites and rich shadows, developing easily and rapidly in warm water. If dried too slowly, the print will lack snap and vigor, and will take longer to develop. The tissue should dry in from five to six hours. A good plan is to prepare the tissue before leaving the studio at night, and it will be ready for use in the morning. If dried in too warm a room the tissue becomes brittle and is difficult to handle; in such a case the only remedy is to allow it to absorb sufficient moisture (without exposure to light) to make it pliable. A good, vigorous negative is required to get a perfect carbon print; a weak, flat negative will generally give only poor, flat prints at best. The drying-room must be free from dust, and the tissue, after being withdrawn from the sensitizing bath, should be laid, face down, on a sheet of clean glass, and the surplus solution removed with a squeegee; it may then be hung up with clips to dry.

PRINTING.

To prepare a negative for carbon printing, cut out a matt of opaque paper so that the matt will cover the four edges of the negative to the extent of a quarter of an inch; fasten this matt to the face of the negative.

Now cut your tissue large enough to completely cover the negative with its matt. If this is not done the print will not adhere to its support, but will lift away at the edges during development. Be sure that the paper is dry before placing it in contact with the negative, or it will adhere to the film and ruin the negative beyond remedy. Having exposed the tissue—a detail which must be mastered by experience—cut pieces of your single transfer paper, place them with your exposed prints in cold water until both pieces become limp, then bring the face of the one (tissue) into contact with the gelatinized face of the other (transfer paper). Take them out of the bath together, lay them on your plate of glass, cover with a rubber cloth, and squeegee them into close contact, using light pressure at first, then heavier, until the pieces adhere firmly and perfectly together. If prints on opal or celluloid are desired, coat the support with a gelatine solution made as follows: Allow 120 grains of gelatine to soak in 16 ounces of water for an hour, then dissolve in a hot-water bath and add 7 grains of chrome alum previously dissolved in half an ounce of water, stirring vigorously while the addition is being made. Coat the support either by dipping the opal or celluloid into the solution or brushing it on with a camel's-hair brush, and allow to dry.

After taking the tissue and its support out of the cold water, place them, after squeegeeing, between blotters, place under *light* pressure for five to ten minutes, and then proceed to develop. This is done by placing the tissue and its support in a tray of hot water, about 100° F., and keeping the water moving over the print. Soon the gelatine and its pigment will begin to ooze out from

the edges, when you may take hold of the tissue and gently pull it away, leaving the pigmented image on the support under water. By keeping the water moving over the print, the image will soon appear until, if the exposure has been correct, you will have a print with full gradations of tone and detail. If the exposure has been too long the tissue shows its insolubility by refusing to adhere to the support; if the print is under-exposed the image will wash away too easily. When development is complete it is stopped by rinsing the print in cold water. The print is then alumed by immersion in an alum solution made as follows:

Pulverized Chrome Alum	1 ounce.
Water	20 ounces.

Allow the print to remain in this bath for ten or fifteen minutes; this hardens the film and clears it of any bichromate stain which may have remained after development. Now wash the picture in cold water for about twenty minutes and allow to dry, after which it may be spotted and mounted. Prints made in this way, with only one transfer, have the image reversed from the right to left, or *vice versa*; but this of little consequence in bust portraits, etc.

DOUBLE TRANSFER PRINTING.

To obtain prints in which the image is not reversed a double transfer is necessary. For this we require sheets of "temporary" support. These may be bought with the tissue. Before use they must be rubbed over with a waxing solution made of:

Resin (powdered)	36 grains.
Yellow Beeswax	12 "
Benzole	2 ounces.
Turpentine	2 "

This is rubbed on the temporary support with a flannel cloth, so that only a thin film of the wax remains on the surface. The first transfer of the print to this support is made after the manner already detailed for single transfer pictures, after which the print is developed, alumed, and dried. Now take a piece of "double transfer-paper," for final support, which is paper coated with a partly insoluble gelatine, and obtainable commercially. Place the print and a piece of final support in cold water until the face of the final support feels slimy, bring them into contact, face to face, lay them on the plate glass, cover with the rubber cloth, and squeegee firmly until they are everywhere in perfect contact. Then hang them up to dry, when the temporary support may be pulled away, leaving the transferred picture on its final support.

To secure double transfer prints with a matt surface, matt opal glass must be used instead of the commercial final support. First clean the opal thoroughly, then wax it with the waxing solution already given, let the wax dry without permitting any dust to settle on the surface, and then flow it with plain collodion. When this latter has set, *not dried*, place the plate in cold water until all traces of ether and alcohol disappear, and squeegee your exposed tissue into contact with the collodionized plate. Develop, alum, and wash as usual, dry, and transfer, as already directed, to the final support. When the transfer is complete the print on its final support will strip away from the plate, giving a picture with a fine matt surface.

TRICHROMATIC PHOTOGRAPHY.

By LEON VIDAL,
Paris, France.

ALTHOUGH a beautiful photograph, made after the ordinary manner, has always an incontestable charm, with which we have to be contented in most of the cases where photographs are at all obtainable, yet it cannot be doubted that a much greater attraction exists in photographic images which give us not only lines and light and shade, but the colors of the original subject.

The production of such pictures has already been facilitated, at least in some measure, by the introduction of instruments which give a synthesis of the colors of a subject, such as the photochromoscope. To the objection that these instruments give us only a pure vision of the colors in their virtual condition, we may answer that the stereoscope has never been reproached with giving us merely the illusion or sensation of relief. It is, in fact, a great deal to be able, by means of two prints of a subject, made under certain well-known conditions, to view the subject with the relief of nature.

How much more complete and delightful the sensation afforded by the same image if color could be added to the relief! This most desirable result is now possible by the use of special apparatus and methods. We need not minimize the difficulties attending this work. It is obvious that the accomplishment carries with it complications which do not exist in ordinary photography.

This is why we cordially admit that, at present, trichromatic photography cannot enter into permanent or common use, but must be regarded as available for special work, indoors or outside, where the requirements and limitations of the work may be given proper consideration. But the occasions when trichromatic photography is available are always so numerous that the progressive photographer should at least know how to proceed in this interesting application of his art.

We do not offer our readers anything new in explaining to them the method of operating by which we arrive at chromoscopic vision. Nevertheless, it may be well to recapitulate, for some, the essential phases of this operation:

They consist, 1, in the impression, either with an ordinary apparatus in three successive exposures, or with a special apparatus giving simultaneously three images identical in size of the same subject. If their dimensions are identical, their modelling is not so; it is such that one should be the reproduction of all in the subject that depends on the white and the blue and with their combinations with other colors.

The second should more especially represent the white, the yellow, and the green of the subject; and the third corresponds, as regards the action produced, to that of the white, the red, and the yellow.

These distinctive effects are obtained by the use of plates and color filters, or screens, of different sorts; the ordinary plates being sensitive only to white and blue light, are used for the negative securing the blue sensations.

As to the two others, in the order in which they are

indicated, we make use of plates sensitive to the yellow radiations, and of plates sensitive to the red radiations.

To moderate the action of the blues, which would be stronger than that of the yellow and red, we make use of color filters, either yellow or red. By this method it is possible to select the essential colors of a subject sufficiently well to allow of their synthesis, operated as follows, giving us the polychrome vision of which we now treat.

When we have to reproduce, as we have just said, polychrome subjects susceptible of motion during exposure, we make use of a special appliance which we may designate under the name of chromograph, by which we obtain the three negatives simultaneously. In this case the color screens or filters are permanently fixed, and each frame indicates by a special mark the color to which each plate that it contains is sensitive.

2. The negatives once obtained, it is now necessary to print from them transparencies on glass—a very easy operation, but requiring a certain skill, quickly acquired, in order to obtain the relative degree of intensity of each of the three images forming the chromogram.

In any case a first chromoscopic trial is necessary, and if an error be indicated we know at the same time whence it arises and which transparency or transparencies are to be made over again, giving to them more or less intensity as seems required.

3. The use of the chromoscope, after the transparencies are finished and adjusted, does not offer any difficulty; this apparatus should be perfect in construction, so that the transparent and reflecting mirrors should produce the blending in a single image of the three



John H. Ryder,

AN IDLE HOUR.

Cleveland, O.

Engraved by the Art Engraving Co., St. Paul, Minn.

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W. M. Morrison,

Chicago.

MRS. JAMES BROWN POTTER.

Engraved by the Electric City Eng. Co., Buffalo, N. Y.

images, each placed behind a colored screen corresponding to the color of the respective transparencies.

If a stereoscopic negative apparatus has been used, the chromogram will be formed of double images, and the chromoscope should be stereoscopic, so as to obtain at the same time the sensations of relief and color.

In many cases the simple chromoscope suffices, and its use is necessary in the case of the reproduction of plane surfaces, such as paintings, mural decorations, etc. Moreover, even with the simple chromoscope we get, owing to the complement furnished by the colors, something like the sensation of a very satisfactory half-relief. The colored screens in the chromoscope—red, green, and blue—form a complementary combination, giving the pure white.

A single play of colored screens cannot, although giving the pure white by the combination of the three maximum radiations, lead to the obtaining of all the possible tints. There are some colorations so greatly saturated that it would be in vain to seek to obtain them with screens of a medium saturation.

This is why we believe that we should have for lighting the chromogram three series of screens of different intensities; or, still better, a triple series of the same screens to be used according to circumstances in the simple binary or ternary condition.

The last series resulting from the triple superposition of each screen of the same color, will give a degree of saturation capable of realizing the extreme desiderata.

With the aid of mechanical improvements, which do not seem difficult to obtain, it would be possible to construct a chromoscopic appliance analogous to the so-

called American stereoscope, in which we bring, by a simple rotary movement, successively in front of the eye-piece a greater or smaller number of views.

For the chromoscope the mechanism would evidently be more complicated, but our manufacturers of instruments are sufficiently skilful to arrive at a similar solution. Let us leave it to them, and they will soon be successful, as it is easy to conceive the principles of a mechanism of this description.

These preliminaries stated, we revert to the unequalled pleasure which a spectator feels at viewing photographs in colors, and to the enjoyment, always new, for the amateur photographer to find again, although in the virtual condition in his chromoscope, all the colors in infinite number of the original subjects.

We do not know what the future has in store for the direct photography of colors, without offense to *Chassagne* and *tutti quanti*. This method will always be one of great delicacy and the least practical. Therefore, in hoping for better things, since we do not despair absolutely of the future and of science, we should give a share of our attention to chromoscopic photography, because of its extreme interest and as an application to which we must owe, if we have the gift of true artistic feeling, pleasures greatly superior to those procured by monochrome photography.

IODIDE OF SILVER AND HALATION.

BY DR. VICTOR SCHUMANN,

Leipzig.

IF an object is photographed which shows great contrast of light and shade, the high-lights in the negative, as all know, will be more or less solarized and surrounded by a halo, which is the result of the reflection of the light rays which entered the film. Windows and other light apertures, in interiors in particular, will cause such halation in a very marked degree.

It is now pretty generally believed that these reflections originate on the back of the plate, and to prevent them a colored coating is usually applied to it in order that the chemically active rays may be absorbed instead of being turned back into the film again, as is the case with bare glass. Various coatings are being used for this purpose. Possibly, in the hands of their discoverers, these coatings may have answered, but lately many complaints are heard that in certain cases they failed to prevent the mischief.

Although I have not experimented in this direction to any great extent, yet in studying the ultra-violet rays I came to notice what, perhaps more than anything else, may be calculated to overcome this dreaded halation. Let me explain: By allowing the silver-haloid from an exceedingly diluted gelatine-emulsion to subside (process for making plates sensitive to ultra-violet) I obtained plate-coatings, which, beside an infinitesimal amount of gelatine-emulsion, contained pure

bromide of silver, and alongside of this 5, 10, or 20 per cent. of iodide of silver. The bromo-iodide of silver emulsions had been made with gelatine containing bromo-iodide of potassium, not by mixing bromide and iodide of silver gelatine. After drying I covered each of these plates with a sheet of tin-foil, with four small openings cut out of it, and burned before each opening, increasing each time the distance of the plate from the flame, 25 cm. of magnesium ribbon. I developed the plates with pyro-soda and a little bromide of potash. The result showed that the bromide of silver, exposed at 1 cm. distant from the magnesium flame, had entirely lost the capacity of becoming black in the developer, while on the bromo-iodide of silver plates treated in the same way an intense picture appeared. In both cases the pictures of the respective cut-outs in the tin-foil rested on fogged backgrounds; but this fog is entirely different in the two plates. In the bromide of silver plate it resembles the halo before mentioned. It begins close to the outline of the cut-out, surrounding it like a ring of equal width and rapidly diminishing intensity. The bromo-iodide plates look altogether different. They resemble more a plate slightly and evenly fogged all over. Only after close examination does this plate show a dim halo, not at all pronounced. This proves to what extent the iodide of silver counteracts solarization and the formation of halos. The remainder of the bromo-iodide exposures support the above experiment with only this difference, that on account of their greater distance from the flame at the time of exposure they show no trace of a halo. Everywhere the iodide of silver has energetically resisted the reversal of the

picture and the fogging of the unexposed parts of the plates.

Although the conditions of practical work may vary somewhat from those of my experiments, these results prove beyond doubt the beneficial effect of iodide of silver on bromide of silver-gelatine in cases of great contrasts of light and shade.

Furthermore, my spectral observations support this, entitling one to the conviction that all plates much inclined to solarization and halation contain no iodide of silver, or at least no sufficient amount.

PLATINOTYPE PRINTING WITH THE HOT BATH PAPER.

By HERBERT E. WATKIN,
Scarborough, Eng.

It is difficult to find a topic for MOSAICS which has not already been thrashed out by abler pens than mine. As a professional photographer, however, I have often wondered why platinotype printing is not more general, and so, being an enthusiastic believer in the process, I am tempted to give particulars of my mode of working. I dare say there is nothing new in it to most professional photographers, but it may lend a helping hand to some who have not yet attempted printing by this beautiful permanent process. No very reliable instructions can be given as to printing, as practice alone will teach this; but I may say I expose until the image is faintly visible. After a day's printing I take the ex-

posed prints and classify them in three batches, viz., over-exposed, well exposed, and correctly exposed. The developing bath is one of a saturated solution of oxalate of potash. This bath is put into an enamelled dish and heated on an oil-stove to the desired heat. First of all, the over-exposed prints are developed at about 70° F. When these are finished I turn up the lamp a little, and when the bath registers 90° I develop the well-exposed prints. After this the correctly exposed prints are developed at between 130° and 140°. As the pictures are developed they are immediately plunged into a bath composed of two ounces of hydrochloric acid and 120 ounces of water. From this bath they are transferred into another of the same strength for five minutes, and again into another of similar strength for the same period.

It is well to use separate dishes for these baths, and to keep the prints moving while in them, in order to insure their being perfectly cleared. After this they are washed thoroughly for half an hour. If the pictures are imperfectly cleared or washed, they are liable to turn yellow after a time, but with proper treatment I consider platinotype the most permanent and artistic work that can be produced by photography.

Great care should be taken to keep the paper perfectly dry, both before and after printing, and to insure this I have three tin tubes, each containing chloride of calcium. No. 1 tube contains the stock paper; No. 2, paper cut to size for the day's use, and into No. 3 I put the printed paper. I use the hot bath platinotype process in preference to the cold bath, as, after many tests, I concluded it gave by far the best all-round results,



Herbert E. Watkin, .

Scarborough, England.

A PORTRAIT.



Harris Pierce,

MY SON.

New York.

although it is a little more difficult to work. By working in the manner described I seldom have to throw out a spoiled print, and thus a great saving is effected.

BE A MAN.

By C. W. JUDD,
San Diego, Cal.

To be a man you must have self-respect, and you cannot have this unless you can command the respect of your fellow men. You cannot command their respect unless you prove to them that you are worthy of it. You cannot prove yourself worthy of respect by running a race with some other fellow to see which can furnish the most "shoddy" for the least money.

This idea of "something for nothing" is played out. If a man did not think the money offered for an article of as much value to him as the goods, he would keep the goods, would he not? If he did not he would be a fool, and fools of this sort don't stay in business long, for they soon run out of goods. Now, to be self-respecting, a man must at least have good, wholesome food, decent clothing, and a comfortable place to sleep. These things require that there shall be some sort of a margin of profit over the cost of stock, and when people come to you and say, "Why! I can get such and such from so-and-so for so much," if you are a man you will not attempt to argue with them, but tell them politely that you are not running so-and-so's business, and have nothing to do with his prices, that the time and study you

devote to your work costs you what you ask for it. Tell them, also, courteously, that you will not take offence if they go to so-and-so for their work if they consider it worth its price, and if they persist in going (nine times out of ten they stay) show them out and bid them "good-day" without any show of resentment or blame.

Mark me: these people will have more respect for you than when they came in, and, moreover, they will think about it, and very likely come back.

But this is not all you have to do. You must back up your assertions that your work is worth a certain figure by the facts. You must have more than mere assertions to give them, or they will soon find you out and you will sink lower in their estimation than "so-and-so."

You have to study, and try, and study continuously. If your business is taking portraits, study faces—on the street, in the trolley car, in the shops, at the evening parties and public meetings. Note the poses of nature, the styles of faces, the deformities; watch profiles, quarter-faces, full-faces, everywhere. Note the composition of the groups, how the lines break and how the light falls. Learn to select the good from the bad, and when you go under the skylight work for them.

When a certain style of face and figure presents itself you will remember a dozen such and how they looked best. Have an ideal for every picture and work for it. Follow it all through. In the dark-room watch for the point of light, for the mass of shadow, and bring them into harmony.

In the retouching throw away the old stipple-stipple hatch-patch that has been the eyesore of every artist



Thomas Harrison, Jr.,

Chicago, Ill.

"IN MAIDEN MEDITATION, FANCY FREE."

Engraved by the Photo-Engraving Co., New York.



W. Kuebler, Jr. (Copyright, 1897),

Philadelphia.

"AVE MARIA, GRATIA PLENA."

Engraved by Blomgren Bros. & Co., Chicago, Ill.

since it was foisted on to the fad-loving public. Study old print engravings and the vignettes on the currency notes. Notice how they are modelled and rounded out by the curve of the lines.

The engraver had no negative ready-made to work from ; but by fineness or breadth and curve has moulded and brought out from faintest tint to deepest shadow pictures that in many cases are finer than all but the best of photographs.

Look at your negative at a distance. Don't get your nose down to the plate and smell out each little speck. Throw your head back like "a man" and do the modelling first. Nine times out of ten when that is properly done the smoothness will be there, too.

Use a fine point in retouching heads of the average size, and let your lines follow the shape of the muscles. Make the lines just as nearly invisible as possible. It does not make any difference how long you make them, but it does make a great difference how strong they are.

Remember one thing, the print from the best retouched negative does not show that it has been retouched at all. In other words, the retoucher should be a modest man and not advertise by every plate that goes through his hands the fact that he has been pecking at it.

The same care in printing, studying effects of light and dark shades, tasteful vignettes, harmonious shapes, careful toning, suitable mounting, and general neatness of work, will make you feel in your own soul that you have earned your price, and you can look the world in the face and "be a man."

CRITICISM.

BY ACTINIC.

OUR ears have long been assailed by the echoes of the controversy as to whether or not the photographer is entitled to consider himself an artist, or is to be regarded merely as a mechanical individual whose work demands no more artistic sense than the driving of a horse-car. The earliest opinion on the matter, viz., that before the star of Daguerre the paint brush must fade away and die, has been disposed of effectually, and a directly contrary opinion has arisen, which is still held in some quarters. It is not our purpose to rake over the coals of controversy, but we might as well set ourselves down as among those who believe that the art of the photographer is an "art" in the fullest sense of the word, only that it rests on a different basis from the art of the painter. So far as manual dexterity is concerned, the painter must certainly excel the photographer; but manual dexterity is not art. The circle of Giotto was his poorest performance, and had his fame depended on nothing better we should have known but little of him. The Campanile, that expression of his clear perception of just proportions and artistic insight, remains an imperishable monument to his genius, while his accurately inscribed circles remain simply as an idle tale, and the expression of a meaningless mechanical skill. Art, too, is not alone the outward expression of a purely creative faculty, or self-existent sense of the beautiful dissociated from any external, cognate subject, but exists

also in the form of a discriminating taste and judgment as to the beauty of objects presented. It is in this branch of art that the photographer finds his field; and it is a true field, as true as any, even though not the highest. Very few artists rise to the rank of high creative genius. The great majority are copyists of nature, using what skill they may possess to express, more or less clearly, what they see, with here and there a touch of idealizing which either adds to or detracts from the beauty of the picture, as the case may be. A painter in the woods of Barbizon selects a view according to his taste, and endeavors to reproduce it for the delectation of his fellowmen. For this purpose he uses certain tools, namely, paints, brushes, etc. The photographer, wishing to reproduce the same scene, must use really more skill in the selection of his point of view and composition of his picture, and in so far he parallels the intellectual processes of the painter; he merely relies upon different tools, preferring a mahogany box and a piece of glass to brushes and canvas. Of the great masters who express on canvas thoughts too profound for ordinary men, we say nothing. Photography, on its present basis, at any rate, can probably never become a vehicle for expressing the inspirations of original genius, but it can and does serve as a medium for exercising discriminating taste and discernment.

All men who make a business of spoiling good paint and canvas are not artists, nor are all photographers; but in either case exists the opportunity for the exercise of parallel functions, the difference being merely in accessories and method of execution.

All this, however, is merely a digression, although it

may not seem so. What we started to write about was the gentle art of criticism as applied to photography. Certainly the past few years have witnessed a remarkable movement. Photography to-day rests on an entirely different basis from what it did some time ago. More really good pictures are now made in a day than were formerly made in months—pictures of a much higher grade, too; efforts to crystallize artistic perceptions and wishes—work, in fact, on parallel lines, intellectually, with that of landscape painters. Much of the work done, however, is open to criticism, and that the opinions of a wise and thoughtful critic are of great value is unquestionable. It cannot be overlooked, however, that among certain writers there is a tendency to lay down dogmatic rules for the observance of photographers, narrowing down the field of endeavor to a straightened conventionality, and tending entirely in the wrong direction. The charge already brought against photography is that it is too mechanical. Why strive to make it more so by insisting on line and measure where line and measure cannot always be controlled without neglecting more important elements? Rules are well enough in their way, but they only good in a majority of cases at best; and while the painter can arrange matters to suit himself, developing or suppressing details at will, the photographer has no such latitude, for which due allowance should be made.

We do not mean by this to imply that there should be no rules, and that every amateur should run riot at his own sweet will, with no final court of judgment to stop him; but we do think that a picture embodying the results of mature judgment and real taste in selection

should not be condemned because some of the lines do not agree with tradition. Photography cannot create lines. It must take what it finds, and the sentiment and general effect of the picture should be weighed in the balance rather than the lines and spaces.

Good critics are rare, indeed, in all departments of art and literature, and while the world is overflowing with quidnuncs, ready and anxious to express views on every subject under the sun, with the most absolute confidence in the faultlessness of their own judgment, their ideas, as a rule, are worthless, being merely the expression of individual likes and dislikes, and consequently void of depth and general applicability.

Criticism is essentially empirical, and can never be reduced to an exact science. At the best canons of taste are but the veriest card-houses, with nothing stable or tangible about them, ready to be blown to the four winds by the first breath of genius, as has frequently happened in the past. It were trite to adduce instances where the critics have been led into absurdities through overweening confidence in their own infallibility. Few of the great poets or painters have escaped condemnation at the hands of men whose names are forgotten, or who are merely remembered to be laughed at; heroes of unwritten "dunciads," whose fool's-caps have been carefully pennued by their own hands. To much criticism we cannot do better than to turn a deaf ear, following the sage example of Sir Joshua, who,

"When they talked of their Raphaels, Correggios and stuff,
He shifted his trumpet and only took snuff."

It is a simple matter to find fault. Nothing in this world is perfect, or ever can be, and it is very easy to

cultivate a carping humor, ready to pick flaws in everything. No good is ever accomplished by this. Carlyle (or was it Goethe?) says, in effect, that in order to do a thing well one should love the subject; and there is a widely applicable element of truth in this. It does not mean that we should blind ourselves to faults, but that the general attitude should be one of kindly interest, and that truth may more readily be discovered by seeking for good than by magnifying evil. There are two methods of criticism—one which points out defects and holds them up as a warning, and one which points out what is good and sets it as an example to be followed. The first method is a very great favorite, yet it is entirely negative, and its service is one of destruction, not of development. The second more nearly serves the true mission of criticism, which is to discriminate the good from the bad, and to teach us to know the beautiful, being constructive in its nature and teachings and leading to positive results. A tyro who is perpetually told what he must avoid will end by avoiding everything, and will be about as well fitted to exercise free judgment and taste as a man tied up in a sack is to run a race. We do not require to be fed exclusively on vinegar. Although such a diet might correct certain humors of the system, it can never support a healthy growth, which demands an entirely different sort of nutriment.

We are well aware that our criticism on the critics does not apply to all. From the editorial chairs of some of our journals we continually receive conscientious and thoughtful views, founded on a broad knowledge of art in general and the possibilities and limitations

of the camera in particular. Competent criticism of this sort is really invaluable, and is essential to the development of photography as an art. Let us, therefore, "render unto Cæsar the things which are Cæsar's," and be truly thankful that all critics are not alike.

HINTS FOR USE UNDER THE SKYLIGHT.

BY W. C. FARRAND,
New York.

To put on paper practical ideas on photography is a task which I have never yet attempted, but if I can offer any suggestions of value from the small stock I have on hand in connection with head-and-shoulder posing and lighting I shall be happy.

Will it be considered a little old-fashioned for me to go back to the oft-repeated question, "What makes my mouth so crooked?" or "look at that eye; I am sure my eyes are both alike?" These faults can be overcome to a great extent by a slight manipulation of the light. When your subject first appears before you, make an effort to transfer a pleasant expression from your own countenance to his. If your efforts be successful, you will instantly notice when his or her face lights up that there is a difference—in most cases a brighter side. Sometimes the more pleasant or smiling eye will be the smaller, but more often you will find the best expression in the larger eye or on the side where the brow is more elevated; in either case it is a good plan to place the subject so that the small eye will be on the shadow side.

We all know that by so doing we do not exaggerate the difference in the size, but seem to equalize them. You can thus make a "Rembrandt" from the side with the small eye, or use a broad or plain light from the other side. The contour of the hair and head, as well as the face, plays a very important part, if you will but notice these small things before your subject is placed in position. If you have to deal with a stout person with a short neck, always stand them for a bust picture. It will give a better proportioned neck. You will thus avoid the great error of tiring them, and you will observe a great difference in the expression, and a look of satisfaction that seems to signify that they feel they are in good hands. Perhaps they will tell you so before they leave, or if the sitting is a failure you have not lost your customer. They will return, perhaps bringing another. Keep them happy always. It is not a bad plan to ask a person their idea of a picture, or what view of the face they would like. This will often throw them off their guard and disarm them of the combativeness with which they have equipped themselves. I have often heard the remark, "Most photographers are so surly or so cross," and we cannot do better than to follow the suggestion made by Mr. J. Ed. Rösch at the convention last year, when he said: "Smile with your customers." I think it a mistake for an operator (when an amateur sitter or any sitter makes a suggestion) to figuratively grab and throw him in a chair, intimating that "perhaps you know more about the business than he." It does not look well. It may be there are some details that you do not at once appreciate, and you thus lose the opportunity of satisfying a particular customer.



Pach Bros.,

LILIAN RUSSELL.

New York.

Engraved by J. Manz & Co., 195-207 Canal St., Chicago.



S. C. Judd,

Sewanee, Tenn.

A TENNESSEE MOUNTAINEER.
(Copyrighted, 1897.)

Then there is the sitter with the crooked mouth. If you again put the side that is raised (the short side of the face) in the shadow, turn his back toward the light, balancing the head toward the shadow and bringing it around facing the camera, you will find the mouth assumes a more horizontal line. With a lady you can either do likewise or square the shoulders, facing the camera, balance the head toward the back and turn it over the shoulder on the shadow side. This latter pose is not, as a rule, appropriate to a man.

Then there is the burnt cork, for crooked noses, prominent cheek bones, or protruding ear. It often happens that you will have a very thin or angular-faced man who possesses a very good outline of the cheek and chin, and yet is the unhappy possessor of the protruding ear; by slightly burning a piece of cork (so that the black will just come off) and applying it to the light part of the ear until it runs into the shade of the background, you will be able to accomplish the desired effect. It is also better to treat such a subject as this with the "Rembrandt" light, as the ear nearest the camera will be in the shadow, and consequently not so prominent. You can by carefully using this method, round a sharp cheek-bone or straighten a broken nose.

I think we ought to make more three-quarter figures of men. Many men you meet impress you at first glance with their figure, the way they carry themselves, the ease with which they sit when conversing, the manner in which they use their hands, and the character which shows from the shoulders down to the hips. These features can be easily brought out in a three-quarter figure pose, whereas they are lost in a simple bust pic-

ture; in fact, I often find I can get a great deal in a head and bust picture when I can catch a characteristic pose of the body. For instance, if you manage to get your sitter in an easy-chair, or an ordinary chair, with a small table or pedestal alongside, engage him in conversation, or if he will not talk, lose your dignity for a moment and fall over something, do anything to rid him of that "what shall I do?" expression, or photographic stiffness. It does not take a great amount of time, and you will notice several poses which will balance nicely with very little fixing.

CLOUDS IN LANDSCAPES.

By H. W. HALES,
Ridgewood, N. J.

ONE of the principal charms of landscapes to the artistic or trained eye is often the beautiful cloud effects, and who is there among us who has not often gazed with wonder and admiration at some particularly fine view where the clouds were piled up in fleecy whiteness and in a manner that only the God of all nature is capable of. How best to get these clouds in our pictures, however, has long been a difficult problem, and if these few hints shall assist any photographer in solving it the writer will be amply repaid.

As is well known the greatest difficulty in taking white or fleecy clouds is the extremely short exposure that should be given them, while to get good definition in the foreground a much longer exposure is necessary.

For this reason the writer much prefers to any other method a shutter that will shorten the exposure on the sky and skilfully time the foreground. Many of the most beautiful effects are only to be had in weather when there is more or less wind, and, therefore, the use of a yellow or colored screen is not advised by the writer, as, while it does really give fine clouds, it often does it at the loss of the foreground. The view enclosed



H. W. Hales.

Ridgewood, N. J.

with this article was taken with Norton's Cloud Shutter, and it should be remembered that it was not a picked or selected one, but was taken in a hurry to illustrate the subject. It will, however, give an idea of what may be done. I would also say that a cloud-shutter of any kind requires care and judgment in its use, and I would, therefore, not recommend it to a button-presser. If, however, anyone wishes to get the best possible results and is willing to take time and care to do it, there is little doubt that he will be much pleased with this

method of working, and will be able to get effects that perhaps could not be produced in any other way.

PERMANENCY OF SILVER PRINTS.

By E. M. ESTABROOKE,
Elizabeth, N. J.

THIS is a subject that has been discussed since the first silver print was made, and apparently as little is known by the mass at this time as to the causes for lack of permanency as when photographs on paper were first produced. And yet it will be found that almost every old photographer has in his possession silver prints, both on plain and on albumenized paper, that have withstood the "ravaging tooth of time," and are in as perfect condition to-day as when first made, barring the deterioration of the paper itself, with which the photographic processes have little or nothing to do. While the work of the average photographer will now and then give examples of permanent prints, the bulk of his productions will within a few months' time show some signs of yellowing, and within a year or two will "go to pieces," so to speak, and the profession seems to be as much "at sea" now as ever regarding the causes thereof.

I also must confess to the same impeachment of ignorance as to the cause of yellowing of silver prints and as to the cause of blistering of albumen-paper, until within the past two or three years, within which period of time I think I have received some enlightenment on



Gilbert & Bacon,

EDITH MASON.

Engraved by the Binner Engraving Co., Chicago.

Philadelphia.



Kennedy & Bell,

A CANADIAN BELLE.

Toronto, Can.

Engraved by the General Engraving Co., Cleveland.

both subjects. But as albumen paper has been relegated to the past, or partially so, blisters do not count as they used to, and, as permanency or freedom from yellowing is my subject, I shall confine myself to that in this paper.

The causes of deterioration in silver prints, in the long discussion of the subject during the past twenty-five or more years, have been attributed to the paper, to the silver, and to the processes of toning and fixation, and also to lack of thoroughness in eliminating the chemical components of the various solutions used in making silver prints; and I am not sure that I have ever heard or seen to this day any convincing exposition to prove just where the trouble might be located; but it is well known that a majority of the writers on the subject seem to think that non-elimination of the hypo has been the cause of all the trouble.

The elimination of the hypo from the silver print by water has been the subject of innumerable disquisitions, and the formulas for hypo elimination that have been printed and published are "legion;" but, strange to relate, the use of javella water, of nitrate of lead, and the other various and curious formulas never seemed to succeed any more than excessive washing in producing silver-prints of assured permanency. Assured permanency seemed to be a mere matter of luck, for no one could tell what batch of prints out of a week's or a month's work would possess that desirable quality.

The general use of the dry plate in photographic studios, however, in more than one essential has revolutionized photography. In the first place, it compelled us to make ourselves better acquainted with the

action of hyposulphite of soda on the gelatine film, which we found was not acted on so readily or so perfectly as were the collodion films of the wet plate, the reasons for which were easily apparent from the greater thickness and homogeneous quality of gelatine film as distinguishable from the thinner and crystalline film of the collodionized plate. We very soon found that however well we had supposed we had fixed our gelatine film, there would in a short time set in a yellowing that spoiled the plate for further usefulness. Now this yellowing did not result from incomplete washing of the plate, nor apparently from incomplete fixation, for invariably the plate would be colorless when set up in the rack to dry after washing. Consequently it was soon decided that a compound of the silver and hypo had been formed that must be redissolved by longer fixing or by using fresh hypo, and so it soon became the custom to keep dry plates in the hypo solution for five or ten minutes after they appeared to be clear. This appeared to meet the case, and is practised in all galleries where good work is produced.

From the similarity of cases it would appear that the sensitive film on the paper, which has an appreciable body and a nature similar to the gelatine film of the dry plate, might also in the fixing bath hold a compound of hypo and silver, which would require a longer fixation to redissolve, and the complete elimination of which would result in a permanent silver print.

Thus, I take it, is the question of yellowing of silver prints by age in a larger degree accounted for.

There are, however, other things to be taken into consideration in the production of permanent prints—such

as a sufficient body of silver to heavily bronze in the shadows, and which will take up enough gold in the toning to give a solid color. This we can hardly expect from the thinly coated papers sold on the plea that they consume so little gold in the toning. Neither can we hope to secure permanency from papers toned in compound fixing and toning solutions when lead is the principal toning agent, and the fixing action is stopped when the desired color is procured. The use of a separate fixing solution is recommended to overcome this difficulty, but because it necessitates an additional handling of the prints it has been objected to, and not generally adopted by those who favor the compound toning and fixing formulas.

We are then justified in arriving at the conclusion that any paper that carries a good body of silver, having been deeply printed and properly toned, will give pictures as permanent as the best examples that have yet been produced, if fixed long enough to redissolve the hyposulphite of silver (which forms during the early stages of fixation) and treated to at least a half dozen changes of water in the washing.

I also have arrived at the conclusion that thorough and prolonged fixation is really more imperatively demanded by the new methods of gold and platinum toning than by the processes so long in general use before the introduction of matt-surface papers now so universally favored.

BUSINESS AND PHOTOGRAPHY.

BY F. M. SOMERS,
Memphis, Tenn.

So much has been written concerning business methods, and yet so many go on in a careless, loose way, that it seems a waste of time to mention the subject.

There are many cheap photographers who resort to all low tricks of trade to catch a penny. Some send out agents to sell tickets, and through this means give their poor, uncultured patrons the idea that the hard-up picture maker is very hard pressed for money, and now is their chance for bargains.

Another will make arrangements with a shoe store, giving a photograph ticket for so much spent for shoes. The ticket is marked twenty-five or fifty cents, and is good for that amount at the gallery of Mr. A. or B. The people at large have a very low opinion of men who resort to such methods.

I have more respect for the saloon-keeper who sets a free lunch, and gets patronage in that way. All will admit that the cheap picture maker receives all his work is worth, but at the same time he could rise to a higher class of work and have the respect of his patrons.

I believe in charging a reasonable price for everything. I never make a sitting without charging for it. When a patron asks if I guarantee satisfaction, I always say, "No; that would be impossible."

We should study to improve our work and charge enough, so that we could spend sufficient time and use



F. M. Somers,

Memphis, Tenn.

A POCKET EDITION OF PAPA.



Baker's Art Gallery,

Columbus, O.

A NEW ENGLAND HOME.

(Grand Genre Prize Picture. Celoron, 1897.)

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enough material to make a success of every sitter. By so doing we increase our patronage, fill our purses, and retain our self-respect.

EXPRESSION.

BY T. ZWEIFEL,
Duluth, Minn.

WHILE studying the different pictures at the late Chautauqua Convention I noticed one fault more than any other in the work of quite a number of exhibitors, viz., "lack of expression." Even the productions of a good many of our "leaders"—otherwise masterpieces of lighting and posing—were wanting to a great degree in this essential point.

Now, I know it is very easy to find fault, and I heard a photographer once tell a customer, when she complained of not liking the expression, that he didn't furnish expressions. While, of course, we can't furnish expressions to order, we at least ought to make an effort to have the sitters feel at ease, and otherwise do all we can toward getting them to furnish the expression for us. In a good many cases it is quite a task to get the subjects to lose the self-consciousness they have when posing before the camera. In such a case the sitters should not be aware when the exposure is made. With the rapid plates we now have, under favorable condition, pictures can be made almost instantaneously in almost any studio that possesses the regular portrait lenses, which ought to be used invariably for portrait work.

After once obtaining a good likeness, great care should be taken not to have it spoiled in the retouching. Most pictures are retouched too much, and few retouchers seem to be able to leave that roundness to the face it naturally has when properly lighted. A good retoucher ought to be acquainted, at least in a degree, with the anatomy of the head, neck, hands, and arms if nothing more.

The likeness can also be reduced or intensified to a certain extent by choosing a pose either foreign to or characteristic of the sitter.



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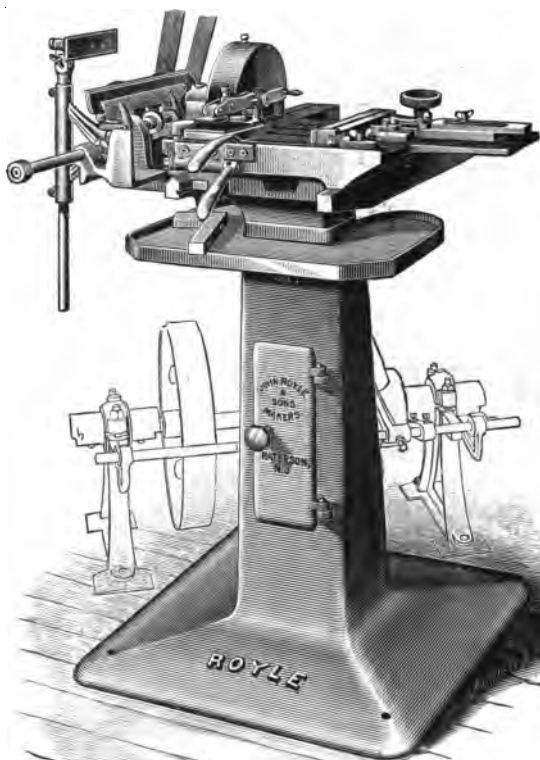


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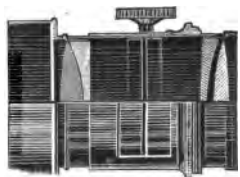
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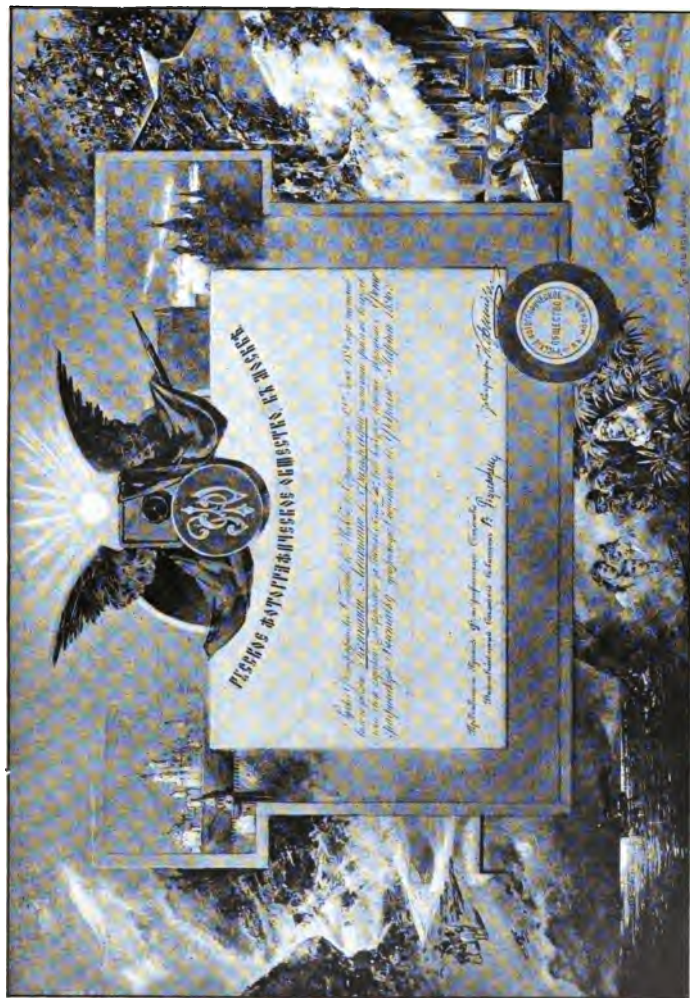
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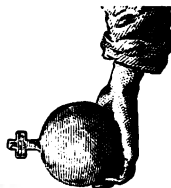
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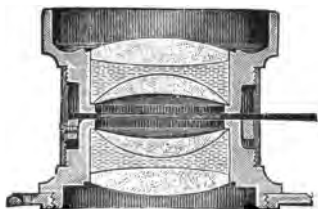


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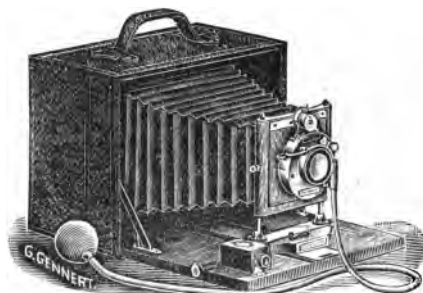
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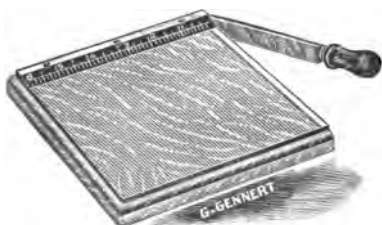
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